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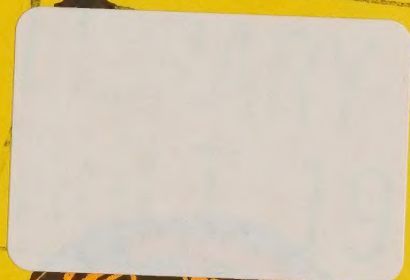
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**ALBERTA DEPARTMENT OF AGRICULTURE**  
**annual report**  
**1970**







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# **REPORT OF THE DEPARTMENT OF AGRICULTURE - 1970**

**THE HONORABLE H. A. RUSTE,  
MINISTER OF AGRICULTURE.**

I have the honor to submit the annual report of the Department of Agriculture for the calendar year 1970.

Nineteen hundred and seventy was a year that started with a pessimistic future but ended on a more optimistic note. This was due, in the main, to increased sales of wheat, barley, rapeseed and potatoes, plus the economic effect of our large livestock industry which kept the farm cash flow stabilized in a fairly healthy condition in the aggregate. The farming community made many adjustments during the year relative to national and world market demands which should further strengthen the agricultural industry of this province.

The year emphasized the fact that agriculture is not an industry in isolation, as the cost-price squeeze and the lower cash flow with some commodities had a serious effect in many of the urban areas.

The department achieved several objectives through its emphasis on market promotion. It mobilized department staff under modern management procedures to work on the project. It furthered the department's aim of having producers run more of their own affairs and more Alberta-produced food products were purchased by consumers.

It is a pleasure to record that the Alberta Agricultural Research Trust, started by this department in 1965, has proved its value by completed research projects already solving several practical problems and the discoveries being utilized by the agricultural industry in Alberta. Research projects underway have been funded to a total of approximately \$1,300,000, of which a substantial amount has been contributed by several producer groups, agribusiness and others. This acceptance and support of the Trust has been most gratifying.

During the year, three staff members retired: Mr. A. M. Wilson, Director, Plant Industry Division; Mr. S. S. Graham, Director, Extension and Colleges Division; and Mr. J. M. Fontaine, Supervisor, Publications and Visual Aids. Their outstanding contributions to the development of the agricultural industry in Alberta are hereby acknowledged. Four new Division Directors were appointed: Mr. J. C. Clarke, Economics Division; Mr. C. J. McAndrews, Extension and Colleges Division; Mr. O. G. Bratvold, Plant Industry Division; and Mr. N. S. Thomson, Program Development Division.



A summary of the activities of the seven department divisions is presented in the following pages. Progress in all fields is noted.

May I, on behalf of the total staff, express my sincere appreciation to you for the guidance and wise counsel in administering department affairs.

Respectfully submitted,

E. E. Ballantyne, D.V.M., P.Ag., F.R.S.H.



## **REPORT OF THE PERSONNEL OFFICE**

It is the particular responsibility of the Department Personnel Office to assist line management in the development and administration of an integrated and comprehensive personnel management program.

The role of the Department Personnel Office was enhanced in the year 1970 by the decentralization of control by the Public Service Commissioner to the department in the areas of selection, classification and salary administration. The Central Personnel Office now acts in a post-audit capacity in these functions.

The University Recruiting Program resulted in the hiring of twelve 1970 agriculture graduates and eight home economics graduates. The Department was fortunate in securing the services of the two top agriculture graduates of the 1970 class.

With the advent of formal collective negotiations between the Civil Service Association and the Provincial Government, changes in employee status were necessary. The department excluded 175 staff members from the collective agreement as the managerial group.

The chief personnel officer served as management's representative on five dismissal appeal boards concerning cases in other government departments.

The department had three documented grievance cases during the year. The outcome after investigation resulted in one dismissal and one compromise, the third case was submitted to a dismissal appeal board and resulted in a decision upholding the department's case.

The staff made extensive use of the various training programs made available by the Training and Development Division of the Central Personnel Office.

Five regional co-ordinators participated individually in one week training sessions at head office. The program included in-basket technique of the Deputy Minister's mail, attendance at Executive Committee meetings and one half day's session with the personnel officers on employee relations.

Nine training sessions were held for management concerning the handling of grievances. A formal grievance procedure for employees in the bargaining unit will become effective January 1, 1971.

The chief personnel officer was appointed to a committee by the Department Personnel Officer's Council to study alternate forms of time recording made necessary by the removal of time recording devices.



A government committee was struck to study the employment conditions of instructors and teachers employed by the Provincial Government. The committee included association and management representatives. The chief personnel officer was one of a number of department committee members.

The assistant personnel officer was appointed secretary to the Department's standing committee concerning staff attendance at professional association conventions.

As of December, 1970, there were 1,204 positions in the department of which 1,113 were occupied. This represents a 2.5% growth in the number of positions and a 3.5% increase in the staff. The position vacancy rate was reduced over the year from an average of 10% to 7%.

Disposition of staff and personnel transactions are shown below in tabular form.

#### Breakdown of Occupied Positions December 1970

Divisions	Clerical	Prof.	Tech.	Other	Total	%
General Administration	27	9	0	3	39	3.5
Program Development	17	27	3	0	47	4.2
Farm Economics	26	23	2	0	51	4.7
Veterinary Services	18	35	11	1	65	5.8
Plant Industry	24	32	27	12	95	8.5
Animal Industry	42	38	9	54	143	12.8
Water Resources	59	81	104	13	257	23.1
Extension & Colleges	97	223	20	76	416	37.4
Department Total	310	468	176	159	1,113	100%
(%)	(28%)	(42%)	(16%)	(14%)	(100%)	

**Note:** Others include brand inspectors, caretakers, fieldmen, gardeners, groundsman, automotive equipment operators, etc.

#### Total Transactions 1970

Description	Total
Competition Held . . . . .	158
Reclassifications — no change . . . . .	103
changed . . . . .	91
Classification Appeals — upheld . . . . .	1
rejected . . . . .	8
Commencements . . . . .	164
Terminations . . . . .	126
Transfers . . . . .	38

**Note:** Difference between number of competitions and number of commencements is attributable to a number of factors: i.e. No one selected or more than one person hired from same competition.



# **REPORT OF THE ANIMAL INDUSTRY DIVISION 1970**

W.H.T. MEAD, B.Sc., P.Ag., Director

## **Dairy Branch**

R. P. Dixon, B.Sc., M.Sc., P.Ag., Dairy Commissioner

## **Livestock Branch**

W. C. Gordon, B.Sc., P.Ag., Livestock Commissioner

Regional Livestock Supervisors

Region I, G. A. Ross, B.Sc., P.Ag., Lethbridge

Region II, R. J. Bunnage, B.Sc., M.Sc., P.Ag., Calgary

Region V, W. Dietz, B.Sc., P.Ag., Vermilion

Region VI, M. S. Kuryvial, B.Sc., M.Sc., P.Ag., Edmonton

Region VII, J. B. Milne, B.Sc., P.Ag., Fairview

## **Poultry Branch**

G R. Milne, B.S.A., P.Ag., Poultry Commissioner

## **Regulatory Services Branch**

H. M. Link, Supervisor Livestock Regulatory Service

Administrative function in the division was changed to transfer supervision of the Feeder Associations Guarantee Act from the Director's office to that of the Livestock Commissioner.

Management by commitment became a reality in the division with commitments made specifically to a warble eradication program and computerizing of data in the areas of cattle brands retrieval, the R.O.P. beef program and the dairy herd improvement program. Progress in committed programs was on target or ahead of schedule at year's end.

Highlights of the year in general industry matters would include the pressures on animal products as source of farm income due to curtailed grain sales; restrictions placed upon inter-provincial trade in poultry products through marketing board activities; consideration to a market-sharing plan in the dairy industry and evidence of increased activity in cattle theft coincident with a general economic recession.

Considerable progress can be reported in the integration of regional divisional officers with the regional headquarters staff in the various designated regions.

Appreciation is hereby expressed for the generous co-operation received from all segments of the industry.

Following is the division report by branches.



# **DAIRY BRANCH**

## **General Review**

Milk production during 1970 showed an increase of 37.8 million pounds or 2.5% compared to 1969. There were 2,000 fewer cows reported in milk on the June census.

The estimated farm value of milk production was \$63,940,000, while the estimated factory value of dairy products was \$71,487,000.

A national system of supply management in the dairy industry was discussed during the year by representatives of Dairy Farmers of Canada and federal and provincial authorities. An Alberta plan is being drafted by Alberta representatives of Dairy Farmers of Canada and is currently being studied.

Miss Marilyn Gray of South Edmonton was named Canadian Dairy Princess at the national finals at the Canadian National Exhibition in Toronto.

## **Extension Activities**

Extension activities dealt with dairy production, herd management and the processing of dairy and frozen food products. The branch prepared monthly newsletters for producers and dairy processors, also information bulletins covering specific topics relative to the dairy industry.

The producers of quality industrial milk continued to be recognized as four plaques were awarded to new producers and nine date plates were awarded to previous winners. To achieve such recognition these producers must have obtained a minimum score of 85 per cent based on premises and bacteriological reports throughout the year. Dairy Branch personnel visited 132 industrial milk producers to check housing, storage and handling of the raw product, condition of milking utensils and dairy herd management.

The branch continued to examine and license graders and testers of dairy products. Tank graders were trained to qualify for the required licenses. A total of 69 milk transport trucks operated in Alberta. Branch personnel continued to supervise the methods of bulk milk sampling and testing at processing plants. The number of bulk tanks in use increased during the year from 1,238 to 1,305 installations.



## Dairy Inspection and Instruction

A total of 1,021 plant inspections were made. Official check tests for butterfat were made in 16,301 shipments of milk and cream and 43,576 lots of churning cream were checked for grade. Of the samples officially check tested and graded, 1.32 per cent required official adjustment. Official weight certificates representing 1,181,300 pounds of butter were issued to Alberta processors under the Canadian Dairy Commission support policy.

During the month of November, a four-week dairy course was conducted jointly by the Food Science Department of the University of Alberta, Canada Manpower and the Alberta Dairy-men's Association. Staff from the Federal Production and Marketing Branch (**Dairy Division**) and Dairy Branch personnel assisted with lectures, laboratory instruction and field trips. Fifteen students enrolled in the course which covered dairy chemistry, bacteriology, herd management and product grading. It is the intent of these periodic instructional programs to upgrade the skills and knowledge of personnel employed in the dairy industry.

## Licensing

Licenses Issued	1969	1970
Milk and Cream Testers Form "A"	245	234
Cream Graders Form "B(C)"	198	180
Plant Milk Graders Form "B(M)"	137	130
Tank Milk Graders Form "B(M)"	163	176
Dairy Manufacturing Plant Form "C"	107	91*

\*Includes duplicate licences issued to plants in which ownership is changed.

## Quality Control

Creamery butter workmanship competitions conducted for the past thirty years by the Dairy Branch were revised because of recent changes in the federal butter grading system. Four competitions were eliminated and the remainder continued with modifications. Alberta cheddar cheese production continued to be graded by the federal dairy division.

Alberta creameries entered a total of 66 butter exhibits at the Brandon, Canadian National and Royal Winter Fairs in 1970 and were awarded 19 firsts, 39 seconds and 8 third place standings.

The evaluation of commercial ice cream and cottage cheese under Dairy Branch supervision was continued by judging panels at Edmonton and Calgary. To encourage good housekeeping and plant improvement, all operating plants were scored by regional dairy specialists. Top scoring plants were evaluated and winners determined by supervising staff. Forty-eight plants scored 80 per cent or better and qualified for merit certificates.



# ESTIMATED PRODUCTION AND VALUE OF FACTORY DAIRY PRODUCTS

The following table shows the quantity, price and value of dairy products manufactured or processed in Alberta dairy manufacturing plants during 1970 with corresponding figures for 1969 added for the sake of comparison.

	Year	Quantity	Price \$	Value \$
Creamery Butter, lbs. _____	1970	29,290,000	.6630 per lb.	19,419,000
	1969	29,527,000	.6530 per lb.	19,281,000
Cheddar Cheese, lbs. _____	1970	3,371,000	.5267 per lb.	1,776,000
	1969	2,882,000	.5101 per lb.	1,470,000
*Ice Cream, gals _____	1970	5,704,000	1.67 per gallon	9,526,000
	1969	5,453,000	1.67 per gallon	9,107,000
Fluid Milk Sales, lbs. _____ (including processing charges) _____	1970	323,667,000	7.69 per 100 lbs.	24,890,000
	1969	302,398,000	7.61 per 100 lbs.	23,012,000
Cream Sales as Milk, lbs. _____ (including processing charges) _____	1970	65,592,000	5.21 per 100 lbs.	3,417,000
	1969	63,385,000	5.13 per 100 lbs.	3,252,000
Skim milk & Buttermilk Sales for Human Consumption (including processing charges) lbs. _____	1970	27,524,000	4.61 per 100 lbs.	1,269,000
	1969	24,854,000	4.57 per 100 lbs.	1,136,000
Skim milk and Buttermilk, lbs. _____	1970	58,895,000	.5090 per 100 lbs.	300,000
	1969	55,197,000	.5150 per 100 lbs.	284,000
Whey, lbs. _____	1970	34,450,000	.2545 per 100 lbs.	88,000
	1969	22,369,000	.2575 per 100 lbs.	58,000
**Miscellaneous Manufactured Products _____	1970			10,802,000
	1969			9,891,000
Total _____	1970			71,487,000
	1969			67,491,000

\*Includes hard and soft ice cream.

\*\*Includes concentrated milk products, cottage cheese, whey, butter, cheese other than cheddar and yoghurt.



ESTIMATED FARM VALUE OF ALBERTA MILK PRODUCTION 1970

The quantity, price, value and utilization of milk production during 1970 is reported in the following table.  
To indicate changes for the previous year, 1969 figures have been included.

	Year	Pounds	Milk Equivalent Pounds	Per Cent Total Milk	Price \$	Value \$
Butterfat for Creamery Butter	1970	20,635,000	589,571,000	38.3	.684 per lb.	14,114,000
	1969	21,167,000	611,475,000	40.7	.684 per lb.	14,478,000
Milk Purchased for the Manufacture of Butter as Butterfat	1970	3,354,000	95,815,000	6.2	.971 per lb.	3,257,000
	1969	2,750,000	79,457,000	5.3	.981 per lb.	2,699,000
Farm Dairy Butter	1970	839,000	19,643,000	1.3	.610 per lb.	512,000
	1969	871,000	20,382,000	1.4	.610 per lb.	531,000
Milk for Cheesemaking	1970		44,500,000	2.9	3.58 per 100 lbs.	1,593,000
	1969		37,712,000	2.5	3.37 per 100 lbs.	1,268,000
*Milk for Concentrating and Milk and Butterfat for Ice Cream	1970		177,259,000	11.5	3.39 per 100 lbs.	6,009,000
	1969		159,802,000	10.6	3.34 per 100 lbs.	5,335,000
Fluid Milk Sales	1970		323,667,000	21.0	5.84 per 100 lbs.	19,078,000
	1969		302,398,000	20.2	5.79 per 100 lbs.	17,505,000
Cream Fluid Sales (Milk Basis)	1970		65,592,000	4.3	3.36 per 100 lbs.	2,204,000
	1969		63,385,000	4.2	3.31 per 100 lbs.	2,097,000
Milk Farm Home Consumed	1970		130,213,000	8.5	3.42 per 100 lbs.	4,453,000
	1969		129,180,000	8.6	3.36 per 100 lbs.	4,340,000
Fed Farm Animals	1970		92,264,000	6.0	3.42 per 100 lbs.	3,155,000
	1969		96,910,000	6.5	3.36 per 100 lbs.	3,256,000
Kept on Farm, Skim milk from Creamery Butter and Skim milk and Buttermilk from Dairy Butter	1970	549,471,000			.509 per 100 lbs.	2,797,000
	1969	569,895,000			.515 per 100 lbs.	2,935,000
Estimated Federal Subsidy	1970					6,768,000
	1969					7,911,000
Total	1970		1,538,524,000	100.0		63,940,000
	1969		1,500,701,000	100.0		62,355,000

\*Does not include butterfat from creamery butter used in the manufacture of ice cream.



During the latter part of the year, a start was made with the federal dairy division on a program of national plant inspection and registration. The purpose of this program is to upgrade the facilities and operations of dairy processing plants.

**Margarine**

The following table summarizes the results of work carried out in the administration of the Margarine Act.

	Samples Checked	Compliance	Non-Compliance
Color	12	10	2
Composition	12	12	0
Packaging	120	117	3
New Cartons	33	33	0

**Dairy Cattle Improvement Service**

The principle activity of this section during 1970 was the milk recording program. Extension activities continued in co-operation with other branches and divisions.

A pilot project financed through the horned cattle trust account was initiated in the Edmonton area to investigate the feasibility of computerizing the D.H.I. program. The conversion of hand calculated records to machine processed records was successful. The project continues into 1971.

**Milk Recording**

A total of 20,853 cows were enrolled on the milk recording program in 1970. Both milk production and butterfat production reached all time record highs with averages of 12,096 pounds of milk and 435.8 pounds of butterfat per cow year.

There were 504 herds under test in 1970, a decrease of 19 herds compared to 1969, but 242 more cows were tested. This increase was due to the larger size of the herds on test; the average number of cows per herd reached a record high of 41.4 cows.

**Mail Order**

This was the basic program offered to 289 herd owners throughout the province. Monthly milk samples were lifted by the herd owners from individual cows and forwarded to one of the Dairy Branch testing centres.

The following table shows the number of herds and cows tested under the mail order system during the past three years.

	1968	1969	1970
Number of herds	314	304	289
Number of cows	10,191	10,341	10,408

**Owner-Sampler Route Plan**

This program operated in the Edmonton and Calgary areas.



The following table shows the number of herds and cows tested under the owner-sampler route plan program by centres during the past three years:

	1968	1969	1970	1968	1969	1970
	Edmonton			Calgary		
Number of herds	170	171	171	57	48	44
Number of cows	7,824	7,933	8,256	2,907	2,337	2,189

The three route plan fieldmen made 2,711 farm visits, ear-tagged 2,640 heifer calves and maintained calf record books for 181 herd owners enrolled on the route plan program.

The Calgary route plan fieldman was actively involved with the Calgary quality milk control program.

The Calgary route plan program was offered to dairymen in the Brooks area on a temporary basis, commencing in September, 1970, to study the feasibility of establishing a permanent route plan program. The trial period will continue to the end of March, 1971.

### Testing Centres

Further consolidation of testing took place during 1970, with samples being transferred to Edmonton.

The following table shows the number of tests conducted at each centre during the past three years.

Testing Centres	1968	1969	1970
Calgary	23,837	16,752*	—
Camrose	13,945	13,458	13,350
Edmonton	73,093	84,976	104,643
Fairview	2,454	2,587	3,225***
Lethbridge	9,950	9,745	10,019
Red Deer	19,389	18,749	20,445
Vermilion	4,739	4,966	407**
Totals	138,347	151,233	152,089

\*Calgary testing centre closed August 1, 1969

\*\*Vermilion testing centre closed December 1, 1969

\*\*\*Fairview testing centre closed October 1, 1970

### Summary

The average production of all cows on test showed an increase of 494 pounds of milk, and an increase of 18.3 pounds of butterfat over the previous year.



The following table summarizes the milk recording program for 1970. Comparable figures for 1968 and 1969 are included.

	1968	1969	1970
Number of herds under test	541	523	504
Number of cows under test	20,922	20,611	20,853
Average number of cows per herd	38.7	39.3	41.4
*Number of cow-years	14,756	15,136	15,611
Average number of cow-years per herd	27.3	28.9	31.0
Average production of milk (lbs.)	11,728	11,602	12,096
Average production of butterfat (lbs.)	412.2	417.5	435.8
Average test (%)	3.51	3.59	3.60

\*Herd averages on the basis of cow-years. The total number of cows on test during the year was used in determining the herd average. Where a new cow was placed on test, or a cow was sold or died, only that part of the year in which she produced was used.

## Reports and Competitions

Annual reports, showing both total and average milk and butterfat production, were sent to all herd owners and district agriculturists' offices. The co-operative programs of certification of production for cows in herds transferring from the provincial milk recording program to the federal R.O.P. program was continued. Dairy Branch data provided the basis for scoring production and herd improvement competitions conducted by the Alberta Dairymen's Association.

## Dairy and Food Laboratory Services

During 1970, the laboratory continued to provide analytical and consulting services to food producers and processors to assist them in the production of safer and higher quality products. At the same time, the laboratory ensured the consumer that food products reaching his table met the quality and compositional standards established by federal and provincial regulatory authorities.

Although the majority of samples were submitted to the laboratory by public health inspectors throughout the province, an appreciable number came from other government agencies, industry, producers and the general public. Evidence of an increasing interest in the quality of food products was shown by numerous inquiries and requests by the consumer for analyses on various food samples.

On November 1, a new section called Centralized Milk Testing was created. This section will function under the Dairy and Food Laboratory and will provide all milk testing facilities, including analyses of milk samples of the dairy herd improvement service. Three laboratory technicians employed in the dairy herd improvement service and the existing analytical instruments were transferred to this new section. This consolidation of analytical services makes possible more efficient utilization of personnel and equipment.



The workload of professional personnel in the laboratory was greatly increased due to staff vacancies and changes during the year.

A total of 19,519 samples, involving 59,904 various tests, were analyzed by the laboratory during 1970. The following table indicates the type and number of samples submitted, and the number of tests performed. The corresponding figures for 1969 are in brackets.

	No. of Samples Analyzed	No. of Tests Performed
Milk and Cream	13,701 (13,394)	47,132 (43,252)
Butter	1,742 ( 2,676)	3,289 ( 4,568)
Cheese and Cultured Products	403 ( 146)	1,811 ( 685)
Ice Cream and Frozen Desserts	965 ( 1,759)	2,921 ( 4,883)
Dry and Evaporated Milk	30 ( 54)	92 ( 115)
Bacteriological Plant Survey	30 ( 5)	135 ( 11)
Eggs and Egg Products	151 ( 127)	168 ( 127)
Meat Curing and Pickling Brines	4 ( 8)	20 ( 39)
Meat and Meat Products	601 ( 334)	1,314 ( 610)
Vegetables	18 ( 69)	18 ( 83)
Fish and Wildlife	727 ( 318)	727 ( 336)
Forage and Grains	43 ( 28)	43 ( 29)
Water	24 ( 48)	41 ( 48)
Human Specimens (Blood, Tissues, etc.)	20 ( 4)	20 ( 4)
Soil	25 ( 10)	25 ( 10)
Washing and Sanitizing Compounds	223 ( 204)	446 ( 408)
Radioactivity in Milk	45 ( 53)	45 ( 53)
Miscellaneous Samples	767 ( 674)	1,657 ( 1,462)

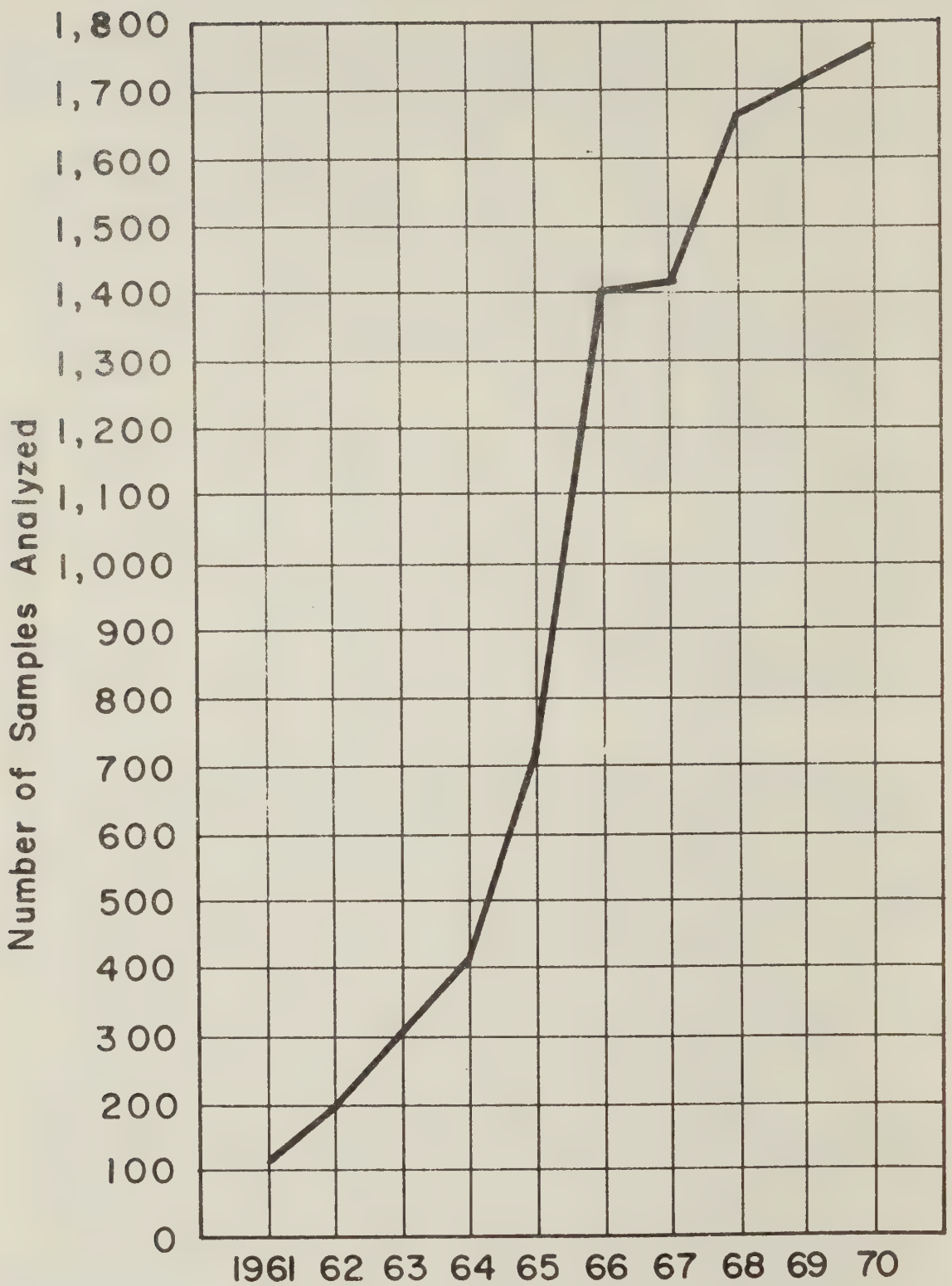
In addition to microbiological and/or chemical analyses of dairy products, numerous milk samples were examined for the presence of antibiotics. Of the 6,039 samples analyzed only 30 (0.50%) were positive for antibiotic residues as compared to 0.56 per cent in 1969, 0.88 per cent in 1968 and 0.87 per cent in 1967.

Screening tests for Q-fever were continued on raw milk obtained from dairy herds throughout the province. A total of 6,021 milk samples were tested and a detailed report was prepared for the provincial and federal health authorities.

The laboratory continued to provide a complete pesticide residue testing service. In addition to various food samples, the laboratory analyzed feeds, soils, fish and wildlife specimens, grain, animal and human tissues and other samples on request. During 1970 the laboratory analyzed 1,778 samples for pesticide residues. The entire pesticide residue testing program was carried out under the guidance and co-ordination of the Alberta Interdepartmental Committee on Pesticides, and the Department of Agriculture Food Residue Committee. The pesticide residue testing service was available to various branches of the Departments of Agriculture, Public Health, Lands and Forests and other provincial agencies. The following figure illustrates the number of samples analyzed during each year from 1961, when this testing program was initiated.



## DAIRY BRANCH-ANNUAL



Due to rapid changes in laboratory analytical procedures and instrumentation, the participation of laboratory staff at several scientific meetings was essential. A number of reports and papers were presented at meetings. Those papers which have been published are listed below.

1. Bacterial Content of Gravy Bases and Gravies Obtained in Restaurants.

**V. W. Kadis, D. A. Hill, and K. S. Pennifold (in press)**

2. Insecticide Levels in Human Tissues of Alberta Residents

**V. W. Kadis, W. E. Breitzkreitz, and O. J. Jonasson**

Can. J. Public Health 61: (5) 413, 1970

3. The Composition of Alberta Milk

**J. G. Armstrong, D. A. Hill and V. W. Kadis**

Presented at the C.I.F.T. Meeting in Windsor, Ont., June 1970  
(in press)

4. Polychlorinated Biphenyls and Their Presence in Various Samples

**W. E. Breitzkreitz**

Report of the 5th Pest. Residue Anal. Sem. Vancouver, p. 46, 1970.

## **DAIRY FARM INSPECTION**

The program initiated during 1968, whereby dairy farm inspection was to be transferred from the Department of Public Health to the Department of Agriculture, progressed during 1970. Effective September 1, 1970 dairy farm inspection responsibilities in the Vermilion and Edmonton districts were assumed by the Dairy Branch with the appointment of three dairy farm inspectors.

At the same time the dairy farm inspector located at Fairview was transferred to Edmonton and the duties in the Peace River district have been undertaken by the regional dairy specialist on a trial basis.

Certificates of registration are now being issued by the Dairy Branch to milk producers on the recommendation of the dairy specialist and dairy farm inspector concerned. This responsibility formerly rested with the Department of Public Health.

Routine farm inspections are carried out on a regular basis with reports being issued and discussed with producers. Milk samples are lifted by the staff for laboratory analyses and results reported to producers. Advice and assistance is given on matters related to milk production and the periodic screening for abnormal milk is conducted.



The following table summarizes the dairy farm inspection work for the period December 1, 1969 to November 30, 1970.

Number of fluid milk producers	677	
Number of producer-distributors (raw milk)	4	
	<hr/>	
Total producers	681	
Inspections of dairy farm premises	1,805	
*Miscellaneous farm visits	985	
	<hr/>	
Total farm visits	2,790	
Milk samples analyzed (standard plate count)	3,090	
Good: 30,000 or less	2,412	78.1%
Fair: 31,000 to 50,000	221	7.1%
Poor: 51,000 to 75,000	146	4.7%
Non-Compliance: Over 75,000	311	10.1%
Miscellaneous milk samples analyzed	361	
	<hr/>	
Total raw milk samples analyzed	3,451	
Suspensions (non-compliance milk)	4	
*Includes milk sampling, bulk tank calibrations, advisory calls and courtesy visits.		

## FROZEN FOOD PLANTS

The administration of the Frozen Food Act, including regular inspection of plants and instructional services to the frozen food industry, continued as a function of the Dairy Branch during 1970. There were 1,012 inspections in 1970 compared to 941 in 1969. At the year end there were 73 locker plants, 51 specialized processing plants and one animal food storage plant licensed under the Frozen Food Act.

Samples of processed meat products (hamburger, sausages) were submitted by the field staff for quantitative analysis for moisture, fat and dextrose. During the year 170 samples were analyzed and 17 were found to be of illegal composition. Following notification of the illegal product the operators concerned were given assistance in formula changes. A few brine samples were taken during the year for bacteriological tests but with most operators using drycure the quantity of these samples was greatly reduced in 1970.

To educate operators on the need for good sanitary practices, the field staff took sterile swabs of processing equipment before and after proper sanitizing. Results of these tests helped to impress the operators of the need for proper sanitation.

In 1970 four locker plants and four specialized processing plants ceased operations while five new specialized processing plants were licensed during the year.

All plants were scored by the field staff. Proficiency certificates were awarded to 45 operators for operations that offered a high standard of service and maintained acceptable sanitary standards.

The shield for Section A (**locker plants**) was won by Rimbey Meat Processing Ltd., Rimbey with Drumheller Frozen Foods, Drumheller and Baier's Home Freezer Provisioning, Ponoka placing second and third respectively. In Section B (specialized processing plants) Fort Macleod Abattoir, Fort Macleod won the shield with Didsbury Processing, Didsbury and Brooks Meat Packing Ltd., Brooks placing second and third respectively.

The following table was prepared from data supplied on monthly reports and covers the twelve-month period ending November 30, 1970. The previous year's figures are included for comparison.

	1969	1970
Number of specialized processing plants	47	51
Number of frozen food locker plants	80	73
Number of animal food storage plants	1	1
Number of lockers installed	13,296	11,796
Number of lockers rented	7,903	6,876
Percentage of lockers rented	59.4	58.3

Following the pattern of the past few years, the number of lockers rented dropped again this year. Several plants discontinued locker rentals and changed over to processing plants as indicated by the increase in processing plants and the decline in the number of locker plants.

The following table shows the total volume processed for lockers and home freezers by both locker and specialized processing plants. The total volume processed shows a decrease of approximately 3.5% from last year. This decrease would have been considerably greater but for the very heavy volume processed during the last four months of the year.

Year	Volume Processed for Lockers	Volume Processed for Home Freezers by		Average Poundage Per Plant
		Locker Plants	Processing Plants	
1965	3,298,034	12,327,077	9,673,252	173,262
1966	2,960,415	14,111,229	10,013,622	188,092
1967	2,504,085	14,742,301	13,397,796	218,887
1968	2,117,955	13,179,390	15,614,399	232,419
1969	1,618,271	13,462,259	13,733,563	226,883
1970	1,342,432	13,326,950	12,821,487	223,761

The above table indicates the extent of service provided by the small meat processor to the rural and urban communities. Slightly more than 95% of the total volume processed was for the home freezer.



The following is a summary of the amounts and types of foods processed by all plants:

Year	Total Pounds Processed	Fresh Meat %	Cured Meat %	Lard %	Fish %	Poultry %	Big Game %	Game Birds %	Fruits %	Vegetables %	Misc. %
1960	18,509,247	77.8	9.6	1.2	.4	2.9	3.4	.1	1.5	1.9	1.2
1965	25,298,363	84.3	8.4	1.2	.3	.8	2.6	.1	.8	1.1	.4
1966	27,085,266	87.0	6.6	1.0	.1	.5	3.1	.1	.4	.8	.4
1967	30,644,182	85.9	8.2	1.2	.1	.5	2.8	.0	.3	.7	.3
1968	30,911,744	86.5	8.8	1.1	.1	.3	2.1	.1	.2	.4	.4
1969	28,814,093	87.3	8.1	1.0	.1	.3	2.3	.0	.1	.2	.6
1970	27,746,321	85.7	9.0	1.2	.1	.5	2.7	.0	.2	.3	.3

## LIVESTOCK BRANCH

### GENERAL REVIEW

Substantial feed supplies appeared to be general across the province following the 1970 harvest. Good yields of late cut hay compensated for light yield of early cut and grain supplies were ample due to good yields and grain carryover. Late in the year, increased sales of barley for 1971 export delivery and more substantial wheat sales resulted in increased prices of grain for feed to mills and feedlots. Livestock producers were forced to commence winter feeding earlier than normal in central and north central Alberta and had been feeding for eight weeks or more by the end of December. There was evidence of higher hay prices in December due to the prospect of a long winter feeding period.

Cattle marketings at public stockyards and packing plants for the first eleven months of 1970 were down 3.7 per cent from 1969. Monthly average price for good slaughter steers on the Calgary market ranged from a high of \$30.87 per cwt. in April to a low of \$26.89 in January.

Alberta hog marketings were up in volume between 13 and 14 per cent from 1969 which was a little under the percentage national increase. Weekly marketings increased sharply as the year advanced resulting in a monthly average price of \$35.99 per cwt. dressed for 100 index hogs at Edmonton in January and a monthly average price of \$22.25 in December.

The June 1 D.B.S. estimate showed an increase in sheep numbers of 13 per cent. For sheep and lambs this was the first increase in numbers since 1961. The monthly average price of good lambs on the Edmonton market was highest in May at \$32.50 per cwt. and lowest in November at \$23.35.

## Cattle

Cattle numbers reached an all time high of over 3½ million head according to D.B.S. June 1 estimate. Since cattle slaughter was down slightly from 1969, this indicated some herd building.

Interest in European imports was high and must now be considered a significant factor in Alberta's cattle industry. A decrease in exports both to Eastern Canada and the U.S. indicated more cattle on feed and more cattle retained for breeding in this province.

### Brand Inspection Record of Live Cattle and Calf Shipments Out-of-Province

	1966	1967	1968	1969	1970
British Columbia	56,244	45,479	56,543	46,381	31,714
Saskatchewan	3,622	2,637	8,489	18,642	10,562
Manitoba	11,574	3,949	23,020	10,887	5,184
Ontario	117,460	86,182	155,542	152,399	115,377
Nova Scotia	50	42			
Quebec	15,948	15,476	29,934	13,603	7,111
New Brunswick	50	16	95	16	52
United States	30,769	3,504	25,148	15,749	11,010
Newfoundland					
Prince Edward Island	33	151			
Total	235,750	157,436	292,771	257,677	181,010

## Cattle Improvement Policies

### Warble Control Area Assistance Policy

Area control projects were established in 20 new municipalities and covered an estimated 29 per cent of all Alberta cattle. These areas received an assistance grant covering 50 per cent of all administration costs to a maximum of \$2,500.00 plus a publicity grant per cattle owner of \$1.00 per farm in the first year of operation, 50 cents in the second year and 25 cents for the third, fourth and fifth year of operation.

Wetaskiwin County entered its third year of warble control and Starland M.D. its second. The following municipal areas were in their first year of the program:—Sturgeon M.D. 90, Parkland County 31, Westlock, M.D. 92, Barrhead County 11, I.D. 14, I.D. 15, Special Areas 2, 3, and 4, Lacombe County 14, Thorhild County 7, Ponoka County 3, Leduc County 25, Camrose County 22, Athabasca County 12, Strathcona County 20, Spirit River M.D. 133, Fairview M.D. 136, I.D. 20 and I.D. 21.

## Beef Cattle Record of Performance Program

An annual report of the Alberta section of the federal provincial beef cattle performance testing program is printed at the termination of each year's results in June.



The following table shows the participation by both commercial and purebred breeders in the last five years.

Year	Number of Herds	Number of Calves Weighed
1966	145	5,598
1967	189	7,126
1968	278	10,960
1969	536	19,945
1970	650	26,650

The Alberta Beef Cattle Performance Testing Advisory Committee met on January 23. Recommendations included:

1. That a computer program to handle beef cattle R.O.P. data be developed in Alberta.
2. Adoption of a set of rules regarding priorities for entry and allotment of pen space in the Alberta Beef Test Station at Ellerslie.

A comprehensive computer program for beef R.O.P. data is being developed in co-operation with the Economics Division. Data from commercial herds is being processed on this program.

Four new test stations for bulls commenced operation in Alberta.

- Bar Fifteen Performance Test Station—Claresholm—capacity of 150 head.
- Chinook Performance Test Station—Raymond—capacity of 600 head.
- Alberta Hereford Association Performance Test Station—Innisfail—capacity of 260 head.
- Alberta Beef Test Station—Ellerslie—capacity of 200 head.

The Alberta Beef Test Station was constructed by the Alberta Government to be operated by the University of Alberta under a co-operative arrangement with the Alberta Department of Agriculture. It is filled to capacity with 80 Hereford, 55 Angus, 35 Charolais, 10 Shorthorn and 20 commercial bulls in its first year of operation.

The pilot progeny test project was completed in 1970. The experience gained is being used to advise the industry on proper procedures and techniques in conducting sire proving programs.

Grants under the municipal scale purchase policy were made on 10 scales to: I.D.'s 14, 16, 18, 19, 21, and 23, Counties of Thorhild and Lacombe and Municipal Districts of Provost and Bonnyville.

Under the assistance policy for progeny testing of Canadian owned sires for beef production, a grant was paid to the Alberta Beef Cattle Performance Association which tested 25 sire groups at the Bassano Progeny Test Station.

## Artificial Insemination

Inseminating reports completed in 1970 covering 1969 breedings show cow numbers up by 17,550 for a total of 114,083 head of which 62,919 were serviced to beef sires and 51,164 were serviced to dairy sires. Use of dairy sires changed little from 1968; however, use of beef sires increased by 40 per cent. As indicated in Tables 1 and 2, the increase of the beef sector was highly influenced by import breeds. Inseminating businesses serviced 90,751 cows and direct semen sales to farmers and ranchers accounted for 23,332 cows, a respective increase of 13 and 30 per cent over the previous year. In 1969, twelve co-operatives and 35 privately owned inseminating businesses respectively serviced 49,627 and 41,124 cows.

Table 1

Breed	1964	1965	1966	1967	1968	1969
Holstein	45,931	44,421	44,367	42,815	42,225	42,206
Ayrshire	2,625	2,343	2,230	2,013	1,964	1,722
Guernsey	2,058	1,917	1,802	1,866	1,809	1,747
Jersey	2,479	2,587	2,214	2,184	2,070	1,895
D. P. Shorthorn	1,561	1,222	1,292	1,336	1,032	
Red Poll	146	269	231	205	218	234
Brown Swiss	2,469	2,865	2,956	2,578	2,523	2,615
Not Separated	169					426
Total Dairy	57,438	55,624	55,092	52,997	50,593	50,345
Hereford	10,824	11,442	10,899	11,115	10,447	10,500
Angus	9,366	9,544	9,142	8,886	8,472	9,354
Shorthorn	1,970	1,823	1,671	1,643	1,406	2,571
Limousin						541
Charolais	3,587	4,896	5,194	4,657	6,833	10,719
Simmental						3,669
Not Separated	604	147	296	782	878	731
Other	212	217	351	33	203	1,821
*Total Beef	26,563	28,069	27,553	27,116	28,427	29,906
Total Breedings	84,001	83,695	82,645	80,113	80,270	90,751

\*Includes cows of **All Breeds** bred to beef sires.

Percentage of female

breeding population bred

by A.I.	6.9	6.7	7.6	6.0	8.8	8.1
No. of Herds	8,664	8,481	8,550	7,050	7,036	9,450



Table 2

## DIRECT SEMEN SALES FROM SEMEN PRODUCERS TO CATTLE OWNERS

Breed	No. of Vials		1969
	1967	1968	
Ayrshire			121
Brown Swiss	266	84	60
Guernsey			86
Holstein	390	501	553
Jersey			261
Angus	4,007	1,164	2,418
Charolais	6,342	7,358	10,410
Hereford	5,760	3,567	2,076
Limousin			2,488
Shorthorn	1,483	753	478
Simmental	120	1,345	6,567
Other	238	5,582	3,647
Total	18,606	20,354	29,165

The following licenses or permits where specified were issued for 1970: 56 inseminating businesses and 9 branch offices, 5 semen producing businesses, 230 Class I and II inseminating technicians, 23 Class III and Class IV semen processing technicians, 34 insemination technician training permits and 3 specified herd breeding permits. Eight new inseminating businesses and 3 new semen producing businesses were licensed.

Alberta semen producing businesses specialize in custom collection of beef bulls and import breeds in particular. Semen export, particularly to the U.S.A., has developed into a volume business (234,090 vials for 11 months, B.C.A.I., Calgary, not included). Total value of semen exported from Alberta is estimated at three million dollars.

Alberta regulation 372/68 was amended to provide for issuance of specified herd permits and to broaden the base for licensing insemination technicians primarily for the purpose of meeting growth demand of the beef sector.

Forty commercial inseminating technicians were trained at V.A.V.C., 27 from the one month course and 13 from the 3 month animal science major. The semen producing businesses held 20 five day A.I. stockman's courses, training approximately 500 farmers for within herd programs.

Meetings and short courses attended were 14 annual and director meetings, 5 regulation advisory committee meetings, 18 short courses, and 15 technician training courses. Eighteen investigations and inspections were carried out.

## Production Classification of Holstein Sires by comparison 1970

(1969 figures in brackets)

	<b>Non-Proven</b>	<b>Below —3</b>	<b>—3 to 0</b>	<b>0 to +3</b>	<b>Above +3</b>
No. of Services	8,617 (6,684)	1,168 (2,631)	3,658 (3,464)	7,063 (6,868)	8,937 (12,385)
% of total	29.3% (20.9%)	4.0% (8.2%)	12.4% (10.8%)	23.9% (21.4%)	30.4% (38.7%)

In 1970, 54.3% of the services to Holstein sires reported were to plus proven sires. In 1969, 60.1% and in 1968 71.8% of the services were to plus proven Holsteins.

Conception rate based on 30-90 day non-return to first service was 72% which is comparable to other years.

## Livestock Feeder Associations

Thirty-seven feeder associations operated under the Feeder Associations Guarantee Act during the 1969-'70 season. There were 1680 active members who fed 78,411 cattle and 1,174 lambs, utilizing a credit of \$14,138,687.74.

Seventeen associations operated under annual guarantee and twenty associations operated under continuous guarantee. Loans outstanding at August 31 under continuous guarantees totalled \$4,537,248.11.

New associations starting operations were Valleyview, Fort Macleod, Knee Hill Valley East and Pincher Creek.

## Summary of Feeder Association Operations covering the past five years

<b>Feeding Season</b>	<b>No. of Assoc.</b>	<b>No. of Members</b>	<b>Cattle</b>	<b>Sheep</b>	<b>Amount of Credit</b>
1965-'66	33	1,101	45,143	3,910	\$ 5,158,097.85
1966-'67	33	1,229	46,317	3,962	\$ 6,250,503.86
1967-'68	32	1,162	45,084	2,158	\$ 6,118,552.50
1968-'69	33	1,204	46,738	1,247	\$ 6,860,869.46
1969-'70	37	1,680	78,411	1,174	\$14,138,687.74



## 1969-'70 Feeder Associations

Association	No. of Cattle	No. of Sheep	No. of Members	Accumulated Purchases
Acme	3,354		81	\$ 610,369.82
Andrew-Willingdon	880		25	132,186.22
Barrhead	1,770		47	396,048.48
* Bashaw	3,905		85	694,958.05
* Battle River	4,966		92	987,331.86
Big Valley	1,226		29	217,742.36
* Bowden	2,533		53	543,650.21
Cardston	2,137		47	363,693.68
* Carstairs	2,854		50	537,936.83
* Central Alberta	4,228	900	94	713,558.63
Central Peace	810		17	121,062.77
* Delburne	1,550		30	286,752.51
Drumheller	2,191		51	407,173.84
* East Olds	2,642		55	476,403.21
* Fort Macleod	206		7	35,512.66
Glenwood	853	274	24	142,529.89
* Grande Prairie	2,905		69	439,497.52
* Innisfail	1,200		32	196,967.09
Knee Hill Valley	2,713		63	615,699.06
Knee Hill Valley East	954		31	207,188.40
* Little Bow	1,721		36	324,669.87
Mannville	920		25	125,023.91
Marwayne	2,486		46	413,011.36
Meadowbrook	3,461		69	587,263.65
North Peace	1,670		43	235,670.20
* Okotoks	2,012		40	348,063.67
* Parkland-Stavely	3,668		66	726,588.33
* Pincher Creek	270		10	50,858.96
* Ponoka	3,463		55	635,132.93
* Raven	2,332		47	391,701.50
Raymond-Magrath	395		8	69,358.24
* Red Deer	1,855		33	304,559.81
* Taber	2,234		40	420,902.82
Two Rivers	2,960		84	494,995.85
* Valleyview	194		6	26,108.09
* Vegreville	1,240		28	187,180.89
Western	3,653		62	671,369.25
Total	78,411	1,174	1,680	\$14,138,687.74

\* Associations operating under continuous guarantee.

## SWINE

The vulnerability of pig production to internal and external pressure was amply demonstrated during 1970. Even though the market price for 100 index carcasses at Edmonton averaged \$28.51 for the year, the range varied widely. A high of \$38.35 was recorded January 23 and this had decreased to \$21.02 on December 22, a difference of \$17.33 per hundred weight of carcass or approximately \$26 between the high and the low gross return for a 200-pound pig.

The grain surplus in 1969 with the then limited outlook for markets caused farmers in Alberta and in Canada to seek alternative sources of income. This was reflected in the 30 and 7 per cent increases in pig marketings in Western and Eastern Canada respectively; and 15 per cent for Canada as a whole as compared to 1969. Numerically, Canada's production of pigs approached 8.5 million head, the second highest ever and approached the 1944 figure of just under 9 million.

The very low market price evident at year-end was expected to continue until early summer of 1971. The prices paid for breeding stock during the last three months of the year reflected the 'inner and outer' approach to pig production. Fall sale averages of \$106.68 for boars and \$100.89 for sows as contrasted to spring sale price averages of \$215.10 and \$184.61 indicated a movement away from pig production. The foregoing in conjunction with increased offerings of sows for slaughter evidenced caution on the part of producers and suggested a return to a more favorable market outlook by late summer or early fall of 1971.

The floor price or deficiency payment policy was still in effect basis 80 per cent of the 10 year average price (i.e., Edmonton 80% of the 10 year 1960-'69 average price of \$27.35) for a maximum of 100 hogs with an index of 100 or higher.

The predicted yield lean content grading system has been universally accepted by the industry. The only criticism was that the difference in price between high indexing and low indexing (high and low quality) carcasses should be more pronounced, especially when the market is low. On January 3, the federal premium for carcasses indexing 103 or higher was reduced to \$1.50 from \$3.00. Later in the year it was announced that this recognition of high indexing carcasses would be discontinued completely as of December 31.

The Alberta Hog Producers Marketing Board operated, from most reports, with success during 1970. The Board was under pressure at year-end because of the greatly increased offerings resulting in individual day sales exceeding 14,000 head as compared to normal runs of 25,000 to 30,000 pigs per week. There was some criticism of the Board by producers in areas remote from central markets, but this was mainly because of the realization for the first time of the cost of marketing. At year-end, the seven man provisional board appointed by the Alberta Products Marketing Council in 1969 to implement the marketing scheme had almost completed the task assigned to them and steps were being taken for the election by producers of a permanent board.



The Department's involvement in the boar performance home test aspect of the Canadian record of performance for swine continued with increased participation and acceptance by the industry. A total of 1,697 boars of 5 purebred and 5 crossbred lines probing and weighing of gilts was still not an integral part of the policy, but 258 gilts were evaluated on request. Contrasted to the viability of the board performance home test, the sire progeny test phase of the R.O.P. program was not patronized by breeders at a desirable level of activity. Since the overall R.O.P. program is a concern of the Alberta R.O.P. Swine Advisory Committee, both provincial and federal personnel were committed to obtain opinion from breeders in the industry. In this respect, a general meeting of all R.O.P. participants was held in Red Deer during November and the livestock supervisor for swine attended meetings at Saskatoon and Toronto where some of the initial work relevant to a more meaningful use of test stations was examined. A total of 42 sire progeny groups completed test; 24 at Edmonton and 18 at Lacombe from 38 breeders, compared to a total of 40.5 in 1969; 22.5 of these at Edmonton and 18 at Lacombe from 27 breeders.

Pig production practices in the province were generally unchanged from previous years. Crossbreeding was general for commercial production and two large pig development companies were being established; one a subsidiary of the Pig Development Company of England; and the second by a private individual in central Alberta. Established producers were increasingly conscious of the need to use performance tested stock and the monthly release from the Livestock Branch on boards probed and weighed within the province enjoyed wide acceptance. Despite this interest there is still much need of improvement in the overall quality of Alberta produced pigs.

The Alberta Swine Herd Health Plan administered by the Veterinary Services Division listed 51 enrolled herds as of October 30, 1970, up five from October, 1969. Twelve of these herds were designated as 'certified minimal disease herds', up two from a year ago.

The livestock supervisor for swine was appointed chairman of the Alberta Advisory Committee on Record of Performance for swine replacing the livestock commissioner. At year end a technician was appointed to the Swine Section to carry part of the technical aspect of the boar performance home test.

The accompanying tables list information relevant to the swine industry in Alberta and to the activity of the Swine Section of the Animal Industry Division, Alberta Department of Agriculture, during 1970.

**Price Average Covering Seven Alberta Swine Sales —  
Edmonton (2), Calgary (2), Camrose (3).**

Breed	Boars				Sows			
	1969		1970		1969		1970	
	No.	Ave. Pr.	No.	Ave. Pr.	No.	Ave. Pr.	No.	Ave. Pr.
Yorkshire	350	\$151.49	288	\$148.08	420	\$150.82	366	\$145.18
Lacombe	50	161.77	55	139.42	36	151.70	41	143.90
Hampshire	2	190.00	12	236.67	0	00.00	3	213.33
Landrace	10	133.50	1	170.00	2	112.50	4	106.25
Tamworth	0	0.00	2	102.50	0	00.00	0	00.00
Poland China	3	183.33	12	136.25	0	00.00	1	110.00
Totals and Ave.	415	\$152.71	370	\$149.10	458	\$150.72	415	\$145.09

**Price Average for all Swine Breeds at Calgary and Edmonton Sales**

	1969		1970	
	No.	Ave. Pr.	No.	Ave. Pr.
Boars	262	\$157.08	234	\$161.45
Sows	336	\$153.36	305	\$156.89

**Price Average Camrose R.O.P. Swine Sale**

Breed	Boars				Sows			
	1969		1970		1969		1970	
	No.	Ave. Pr.	No.	Ave. Pr.	No.	Ave. Pr.	No.	Ave. Pr.
Yorkshire	47	\$146.91	42	\$105.00	33	\$171.12	37	\$110.00
Lacombe	10	138.50	14	102.00	3	176.66	8	105.00
Landrace	3	138.33	0	00.00	0	00.00	0	00.00
Poland China	2	165.00	3	145.00	0	00.00	0	00.00
Totals and Ave.	62	\$145.72	59	\$106.78	36	\$171.58	45	\$108.94

**1970 Price Average for all Swine Breeders at Spring and Fall Sales**

	Boars		Sows	
	No.	Ave. Pr.	No.	Ave. Pr.
Spring Sales (3)	145	\$215.10	219	\$184.61
Fall Sales (4)	225	\$106.68	196	\$100.89

**Canada Record of Performance for Swine—Boar Performance Home Test**

	No. Tested		Ave. Backfat Depth (in.) Adj. to 200 lb.		Ave. Age of Boars (days)	
					Adj. to 200 lb.	
					1969	1970
	1969	1970	1969	1970	1969	1970
Yorkshire	672	890	.78	.79	181	180
Lacombe	251	289	.86	.84	169	166
Hampshire	256	350	.79	.78	173	185
Landrace	18	12	.76	.79	208	191
Poland China	6	22	.71	.70	182	192
Hampshire x Lac.	21	20	.75	.80	150	158
Spot x Lacombe	27	86	.76	.84	156	160
Poland C. x York.	12	10	.72	.64	168	180
Hamp. x York.	3	18	.84	.90	191	180
York. x Lac.	7	0	.66	—	150	—
Totals and Ave.	1,273	1,697	.79	.80	176	178



### Alberta Hog Grading 1966 - 1970

Grade	1966 %	1967 %	1968 %	Index	1969 %	1970 %
A	42.80	40.20	43.66	112	0.15	0.09
B	41.00	42.40	40.95	110 & 109	1.85	1.44
C	6.70	7.60	6.35	107 & 105	11.21	10.88
Light	2.00	2.10	2.50	103 & 102	29.75	29.90
D	0.50	0.60	0.68	100	17.27	16.84
Heavy	4.50	4.70	3.80	98 & 97	21.52	20.88
Extra Heavy	1.80	1.90	1.48	95 & 92	6.42	6.10
Ridgling	0.60	0.60	0.58	88	1.18	1.04
Stags	0.40	0.40	0.25	Light & 80	2.29	2.02
Sows	3.60	4.00	3.82	Heavy	7.76	10.23
—	—	—	—	Ridglings	0.60	0.56
—	—	—	—	Stags	0.18	0.12
—	—	—	—	Sows	3.28	4.13

1966, 1967, 1968 gradings and 1969, 1970 indices exclude stags and sows.

### Number and Value of Inspected Slaughter Hogs of Alberta Origin

Year	Total Number	Value Per Hog	Total Sale Value
1966	1,350,670	\$52.73	\$71,224,204.00
1967	1,562,856	48.76	66,198,759.00
1968	1,696,952	42.62	72,316,158.00
1969	1,415,524	54.53	77,188,633.00
1970	1,620,089	48.42	78,440,135.00

### Estimated Numbers of Swine on Alberta Farms at June 1, 1966-1970

Year	Number
1966	1,208,000
1967	1,254,000
1968	1,245,000
1969	1,220,000
1970	1,600,000

### SHEEP

The total number of sheep and lambs on farms in Alberta at June 1, 1970 is estimated at 247,000 head, up 13 per cent from one year earlier. Increases in the sheep population from last year occurred in census divisions two, three, five, six, seven, eight, ten, thirteen and fifteen. Lamb and mutton slaughterings originating in Alberta at December 19, 1970, were down 6.9 per cent from 1969.

### Estimated Number of Sheep in Alberta at June 1, 1970

Year	Number	Per Cent Change
1966	301,400	—15.4%
1967	287,000	— 4.8%
1968	245,000	—14.6%
1969	218,000	—11.1%
1970	247,000	+ 13.3%

Market prices for good lambs in Edmonton were comparable to the 1969 returns. Lamb prices were slightly higher this spring over last year with May averaging \$32.50 per cwt., \$3.00 per cwt. higher than May, 1969. Fall prices for fat lambs however did not show the 1969 strength even though the number of lambs that were marketed was considerably less.

North Central Sheep Sales of Edmonton marketed over 6,000 lambs with average prices slightly less than the Winnipeg market. This organization has helped greatly to reduce the price spread between Edmonton and Winnipeg. Excellent sheep and lamb sales were recorded at provincial auction markets this past fall. Ewe prices reflected the keen interest in sheep production with prices of \$45.00 — \$50.00 being paid for young breeding ewes. A contributing factor to the reduced number of lambs sold at auctions this year was the expansion of home flocks. This trend is expected to continue next year but more market lambs will become available as sheep numbers continue to increase.

Ram prices were excellent early in the fall as more and more sheep men resort to early breeding. Later ram sales did not receive as much interest but prices continued above average.

### Ram Numbers and Prices at Purebred Sheep Sales North-Central (Edmonton) and Edmonton and Calgary

Rams	1968		1970	
	No.	Av. Price	No.	Av. Price
Suffold	55	\$64.00	66	\$83.50
N. C. Cheviot	22	62.20	13	76.35
Corriedale	16	68.45	12	83.15
Hampshire	7	67.50	11	69.80
Dorset	1	45.00	3	71.00
Lincoln			2	55.00
Southdown			2	60.00

Nine applications were processed under the federal-provincial transportation assistance policy for breeding ewes. This included 1,286 ewes for a total amount of \$2,278.06. This compares with 13 applications for 2,700 head in 1969.



Six rams were purchased for producers under the L.L.B. policy for a total cost of \$585.00. Persons considering the purchase of ewes were encouraged to attend sales and take part in the selection. Much useful information was obtained by the interested individual and it provided an excellent opportunity to arrange future visits to his farm.

Ten seedstock producers completed the provincial sheep record of performance program with a total of 997 head assessed.

"Sheep Notes and News" was published every two months with 700 people on the mailing list. This publication has been very well received and the requests from people to be included on the mailing list has increased considerably over one year ago.

The third annual sheep symposium was held with 82 people in attendance. Three Americans participated in the symposium this year. The symposium proved very popular and attracted a surprising number of people from outside Alberta.

Two sheep grazing reserves contributed to increasing interest in sheep production in Alberta. These pastures are becoming more widely utilized with the number of sheep pastured increasing each year.

Foot rot in sheep proved to be of some concern in 1970; however, compulsory inspection of all sheep sold at public auction markets assisted greatly to control further spread of the disease. The increased movement of sheep throughout the province has resulted in increased chances for disease outbreaks. Fortunately, there was no serious occurrence which would seem to indicate a good health standard in most flocks.

## **FEED RECOMMENDATION SERVICE**

The number of regular feed samples tested for farmers in 1970 was 3,251. This represents an increase of 26% in numbers of samples tested (2,588 samples were tested in 1969). Thirteen hundred and seventy seven feed reports were issued. An additional 2,285 samples were analyzed on a "demonstration" basis for district agriculturists and other department staff. In 1969, 1,375 "demonstration" samples were analyzed.

Comprehensive feeding recommendations were made when samples of all home-grown feeds were submitted and complete feeding information was provided. Of the 349 recommendations made, 209 were for beef cattle, 33 for dairy cattle, 98 for swine, 8 for sheep and 2 for other livestock.

In 1970, 25.3% of the reports issued were accompanied by comprehensive recommendations compared to 22.7% in 1969.

Work is continuing on an **in vitro** study for evaluation of forage samples on a nutritional basis in terms of energy content.

Preliminary work was done on selenium deficiency problems in a selected area at Innisfail. Some analysis of other trace minerals of various Alberta feeds were also done.

Preliminary summaries of average analysis of basal feeds in various soil zones of Alberta were completed.

The complete report of the Soil and Feed Testing Laboratory is included in the report of the Plant Industry Division.

## **TORONTO ROYAL AGRICULTURAL WINTER FAIR**

Alberta exhibited 17 carloads of livestock at the 1970 Royal Agricultural Winter Fair which was held in Toronto November 13 to 21. One carload of dairy cattle, horses and sheep; two carloads of swine; six carloads of purebred beef cattle and six of market cattle were shown.

The Alberta Department of Agriculture assisted the shipment by receiving nominations, co-ordinating selection, assembling and organizing the shipment to and from Toronto. The Canada Department of Agriculture paid 75% of the freight charges and the Alberta Department of Agriculture 25% as well as costs of feed. Breed association appointees make the selection of entries.

### **Special Achievements:**

- Southolm Angus Ranch, Coaldale — Grand and Reserve Champion Steer Carcass and Champion Group of Five Steers and Jr. Champion Angus Bull
- Don Danard and Son, Edmonton — Champion Carload of Steers
- Remittal Cattle Co., Olds — Grand Champion Shorthorn Bull
- W. Gordon Young, Cayley — Grand Champion Percheron Mare
- Stauffer Farms, Eckville — Reserve Champion Hereford Bull
- Cholack Bros., Thorhild — Reserve Grand Champion Market Steer and Champion Crossbred
- Wm. and V. Melenka, Andrew — Reserve Champion Shorthorn Female
- T. G. Hamilton, Innisfail — Reserve Champion Shorthorn Steer and Champion Group of Three
- Carl L. Depping, Olds — Reserve Grand Champion Cheviot Ram
- M. Zemp, Cardston — Reserve Champion Fleece Wool



The following table summarizes the prizes won by the Alberta exhibitors.

	Horses	Beef Cattle	Market Cattle	Dairy Cattle	Swine	Sheep and Wool	Totals
Grand Champion	1	1					2
Reserve Champion		2	1		1	2	6
Champion	1	3	3				7
Reserve		2	2				4
1st	2	2	7	1	1	2	15
2nd	6	3	2	1		3	15
3rd	3	4	1			4	12
4th	5	4	3	1	1	1	15
Others	7	52	19	11	11	12	112

## HORSES

The Alberta horse population continued to decline at the rate of 5% annually to an estimated 80,000 head at June 1. Pregnant mare urine production terminated in Alberta and the price for processed horse meat weakened slightly. Light horse clubs continued to increase in number and breed associations reported increased demand for good riding horses. Four light horse hoof care schools were held during the year in co-operation with the Olds Agricultural and Vocational College.

## REGIONALIZATION

Staffing of the department's regional offices with regional livestock supervisors commenced in 1967 with appointments to the Lethbridge, Fairview and Vermilion offices. The Edmonton position was filled in 1969 and Calgary in 1970. A position at Red Deer was established in 1970 and a competition was in progress to fill it when the year closed.

These positions have proven to be a strong positive benefit to the advancement of branch programs and have assisted the branch in fulfilling the responsibility of acting as resourse personnel to the Extension Branch, Extension and Colleges Division.

## COMMITTEES

Several committees chaired by branch personnel act in an advisory capacity to the department. Those operative in 1970 were: The Alberta Beef Cattle Performance Test Committee, The Alberta Artificial Insemination Advisory Committee, the Alberta R.O.P. Swine Advisory Committee, The Alberta Live Stock Board and the Alberta Warble Control Committee.

The Alberta Cattle Commission acted as an advisory committee to the Minister with respect to the Horned Cattle Trust.

Branch staff acted as members of numerous departmental and interdepartmental committees including the Soil and Feed Testing Committee, the Grazing Reserves Advisory Panel, the Agricultural Products Marketing Committee and two sub-committees of the Alberta Agricultural Co-ordinating Committee.

SUMMARY OF LIVESTOCK EXTENSION

The branch co-operated with the Extension and Colleges Division to apply and co-ordinate a livestock extension program throughout the province. In this capacity, branch personnel serviced meetings, short courses, field days, production schools and a number of livestock shows and sales.

The following summarizes some of these duties for the first eleven months of 1970.

Farm Visits . . . . .	1,148
Meetings and Short Courses . . . . .	171
Culling and/or Purchasing at Sales. . . . .	19
Stockyard Visits . . . . .	171
Radio and T.V. Appearances . . . . .	49
Farm Notes and Other Articles . . . . .	51
Extension Bulletins Revised or Newly Printed . . . . .	8

ACTS

The Horned Cattle Purchases Act

The following table shows the percentage of cattle with horns at the main market centres for the past four years with a base point of 1949:

	1949	1967	1968	1969	1970
Edmonton	19.9	14.0	13.7	15.3	15.6
Calgary	15.6	7.1	6.8	7.1	6.9
Lethbridge		7.5	7.6	7.3	7.7
Medicine Hat		3.7	3.9	4.3	4.3

The Artificial Insemination of Domestic Animals Act

No amendments were made to this act in 1970. The regulation under this act, Alberta Regulation 372/68 was amended in 1970 to provide for the issuance of specified herd breeding permits and to enlarge the basis by which inseminating technicians could qualify for technician license.



# POULTRY BRANCH

## GENERAL REVIEW

Commercial egg production in Alberta totalled 43,065,000 dozen, up 7% from the 40,375,000 dozen produced in 1969. This production again was short of requirements and imports were necessary for several months of the year.

Producer prices for grade A large during 1970 ranged from 33 cents to 42 cents per dozen. The average weighted price for all grades was 32.2 cents, compared to 37.6 cents in 1969. No deficiency payment was paid for the support year ending September 30.

Chicken broiler sales were up 6½% in the January 1 to October 31 period compared to last year. However, B.C. imposed import restrictions on outside product in October. This, combined with severe November weather curtailing drive-in restaurant business, resulted in the largest inventory build-up in history. Competition from cheaper pork cuts also was a factor.

Production to the year end was 32,500,000 lbs., up 14½% from last year. Live weight prices were slightly above 20 cents in the first quarter, dropping to the 20 to 19½ cent level for the balance of the year.

Turkey production in 1970 totalled 16,100,000 lbs., an increase of 12% over 1969. Prices to growers averaged ½ to 3 cents lower than the previous year. As in the case of chicken broilers, B.C. imposed import restrictions on turkeys, resulting in the loss of a substantial portion of Alberta's normal trading market.

On October 7, the Government of Alberta reluctantly agreed to permit the three Alberta poultry marketing boards to limit the selling of poultry products to product produced under quota granted by the respective boards or to product not produced under quota, but to which the board will grant a quota.

## EGG MARKETING AT REGISTERED STATIONS

	Total Eggs 000,000 doz.	Reg. Stations 30 doz. cases	Producer Wt. Price	Layers (DBS)
1966	37.9	475,487	34.0	2,769,000
1967	39.3	522,413	25.9	2,500,000
1968	39.2	501,269	30.3	2,491,000
1969	40.6	495,026	37.6	2,537,000
1970 (est.)	43.0	595,200	32.2	2,685,000

**POULTRY EVISCERATED IN REGISTERED STATIONS**

Year	(Pounds)		Fowl	Ducks	Geese
	Chickens				
	Under 4 lb.	Over 4 lb.			
1966	25,400,000	999,502	2,253,739	1,084	112,000
1967	26,935,000	834,000	2,079,000	4,000	436,000
1968	25,570,000	707,000	1,597,000	4,000	281,000
1969	28,072,000	617,000	1,560,000	3,000	213,000
1970 (est.)	32,500,000	475,000	1,575,000	12,000	258,000

Year	Turkeys			Total
	Under 10 lb.	10 to 16 lb.	Over 16 lb.	
1966	2,197,150	4,420,191	8,620,700	15,238,041
1967	2,666,000	5,090,000	9,780,000	17,536,000
1968	2,381,000	5,668,000	9,325,000	17,374,000
1969	1,948,000	4,927,000	7,430,000	14,305,000
1970 (est.)	2,770,000	5,520,000	8,500,000	16,790,000

**LICENSING AND BONDING OF DEALERS IN POULTRY AND POULTRY PRODUCTS**

**Produce Dealers**

The Poultry Branch administers regulations respecting the licensing and bonding of dealers in poultry and poultry products under the Livestock and Livestock Products Act. Every dealer must be licensed. As protection to producers, all wholesale dealers must furnish a surety bond in favor of the Minister ranging from \$1,000 to \$10,000 depending on the volume of business conducted. licenses were issued as follows:

Year	First Receivers	Reg. Egg Grading Stations	Reg. Poultry Stations	Egg Packing Stations
1966	30	90	30	22
1967	22	71	30	15
1968	23	62	28	22
1969	23	57	28	23
1970	23	45	23	28



## Hatcheries

The Poultry Branch administers regulations respecting the production and sale of chicks under the Alberta Livestock and Livestock Products Act. All commercial and custom hatcheries with an incubator capacity of 1,000 eggs or more are licensed. Since 1951, commercial hatcheries are required to furnish a surety bond, in favor of the Minister, for protection of hatching egg producers, ranging from \$2,000 to \$5,000 depending on incubator capacity. Hatchery capacity and distribution of chicks and poults were as follows:

### Hatchery Capacity

Year	Breeder Hatcheries	Commercial Hatcheries	Total Hatchery Capacity
1966	6	33	5,510,744
1967	3	31	5,208,167
1968	3	32	4,998,897
1969	3	29	5,332,316
1970	2	27	5,332,316

### Chick Disposition

Year	Hatch-ability	Chicks Hatched	Chicks Not Sold	Chicks Exported	Chicks Imported	Chicks Remaining In Province
1966	70.4	17,261,381	1,393,803	1,106,546	294,538	15,055,570
1967	70.3	17,168,275	1,625,053	960,943	634,367	15,216,646
1968	68.8	16,706,092	1,546,906	1,308,692	265,127	14,115,521
1969	71.7	19,294,218	1,820,671	1,166,377	295,332	16,602,502
1970	72.8	20,951,624	2,072,000	945,169	318,903	18,253,358

### Chick Production By Type

#### For Egg Production Type

1970	1969	% Change
5,954,415	5,528,304	7.7 increase

#### For Broiler Production Type

1970	1969	% Change
14,997,209	13,765,914	8.9 increase

### Poult Production

Year	Eggs Set	Eggs Imported	Poults Hatched	% Hatch-ability	Poults Imported	Poults Exported	Poults on Alberta Farms
1966	2,434,267	587,738	1,261,153	51.8	20,250	75,522	1,205,881
1967	2,770,192	195,719	1,486,711	50.1	55,578	74,898	1,467,391
1968	2,414,221	373,232	1,318,929	47.3	8,809	35,188	1,292,550
1969	2,231,174	429,413	1,263,362	56.6	16,100	114,633	1,164,829
1970	2,404,646	392,166	1,424,039	59.2	23,722	139,489	1,308,272

Poult production in Alberta hatcheries in 1970 was **1,424,039** poults, an **increase** of **12.7** per cent from 1969.

Imports of U.S. franchised strains accounted for 83 per cent of the White Leghorn type chicks, 95 per cent of the chicken broiler type chicks, 85 per cent of the meat type turkey poults and 100 per cent of the broiler type turkey poults.

## Importation From The United States

	Chicken				Turkey			
	From Egg		From Broiler		From Meat		From Broiler	
	Production		Production		Production		Production	
	Matings		Matings		Matings		Matings	
	Eggs	Chicks	Eggs	Chicks	Eggs	Poults	Eggs	Poults
Jan.	—	—	—	14,527	—	—	48,800	—
Feb.	—	7,030	—	26,817	78,000	1,400	—	2,400
Mar.	—	1,178	156,864	19,024	35,428	2,228	15,396	—
Apr.	—	17,193	135,088	16,304	162,023	4,672	36,400	300
May	—	12,829	79,868	19,415	30,300	4,122	30,000	—
June	—	13,343	—	43,078	—	—	—	—
July	—	3,700	—	42,653	—	—	10,000	3,600
Aug.	—	125	19,234	43,949	—	—	—	—
Sept.	—	1,540	38,006	12,452	—	—	40,200	—
Oct.	—	2,055	—	1,600	—	—	30,000	—
Nov.	—	—	—	11,114	—	—	6,400	5,000
Dec.	—	—	—	8,877	—	—	21,570	—
Total	—	58,993	429,060	259,810	305,751	12,422	238,766	11,300

### FLOCK APPROVAL

The pullorum-typhoid testing of chicken and turkey flocks supplying hatching eggs continued in 1970. The number of females tested for egg replacement purposes increased by 4.9 per cent, and the number tested for broiler production increased by 15.4 per cent. Testing of turkey females decreased by 19.1 per cent. Two flocks (L.W.'s), totalling 7,700 females, were marketed.

The following summarizes the number of flocks and birds inspected and tested for pullorum disease:

### Flocks and Females Tested

#### CHICKENS

Year	Method of Testing	No. of Flocks		No. of Birds	
		Egg	Broiler	Egg	Broiler
1969	Whole Blood	134	199	95,852	193,829
1970	Whole Blood	123	187	90,067	223,834

	Average Size of Flock		% Reaction
	Egg	Broiler	
1969	715	974	0.00
1970	731	1,197	0.00

#### TURKEYS

Year	No. of Flocks	No. of Birds	Average Size of Flock
1968	16	34,830	2,176
1969	11	32,230	2,930
1970	9	26,090	2,899



## **Distribution of Breeds in Hatching Egg Supply Flocks Tested**

<b>Year</b>	<b>Bronze</b>	<b>Large Whites</b>	<b>Small Whites</b>
1968	18.9%	61.6%	19.4%
1969	28.9%	43.7%	27.3%
1970	26.8%	45.2%	28.0%

## **PROVINCIAL POULTRY PLANT**

The first year of a two-year feeding project has been completed at the plant and the data has been tabulated. In response to requests received by the Poultry Branch, several other tests have been run. A feeding test on ducks was conducted in the spring. A residue test on pheasants was carried out in conjunction with the Field Crops Branch and the Veterinary Services Division. The first in a series of broiler density tests is underway. This test was set up with the Provincial Poultry Plant, the Alberta Broiler Growers' Marketing Board and one of the province's larger growers co-operating on a series of tests. The flock of avian-encephalomyelitis free birds was maintained at the plant to provide experimental eggs for the Veterinary Services Division.

## **GENERAL**

The following table indicates the number of farm calls and meetings requested and attended by members of the branch:

<b>Farm Calls</b>				<b>Meetings</b>			
<b>1967</b>	<b>1968</b>	<b>1969</b>	<b>1970</b>	<b>1967</b>	<b>1968</b>	<b>1969</b>	<b>1970</b>
1,225	1,371	1,313	1,431	65	129	136	235

In addition there were 542 calls to allied trade, 767 to surveys and studies and 46 to radio, TV appearances and other promotional functions.

The poultry commissioner and members of the branch attended the annual meetings of the Canadian Hatchery Federation and the Western Canada Egg & Poultry Association. He and members of the branch served on various committees. The Institute of American Poultry Industries Fact Finding Conference was attended.

The 20th Annual Poultry Industry Conference sponsored by the Alberta Poultry Hatchery Association, Veterinary Services Division and Poultry Branch was held in Edmonton in November.

The 56th annual Provincial Poultry Show was held in Calgary in December. The Vermilion-Mannville Turkey Club held its dressed turkey show also in December.

# REGULATORY SERVICES BRANCH

## Recording of Brands

Summary of Brand Registrations, Transfers, Renewals and Cancellations.

	Cattle	Horses	Sheep	Poultry	Fur Bearing	Total
New Brands Issued	1,466	184	1			1,651
Transfers	453	44				497
Certified						
Extracts Issued	3					3
Brands Cancelled	411	19				430
Brands Renewed	6,125	697	1			6,823
Brands Re-issued	81	7				88
	8,539	951	2			9,492

The Number of Brands in Good Standing at December 31, 1970.

Cattle	35,852
Horses	3,831
Sheep	22
Poultry	4
Fur Bearing	1
	39,710

Nineteen hundred cattle and 300 horse final renewal notices were written and mailed in February of 1970. In addition, 8,200 cattle and 800 horse first renewal applications were mailed in August and September.

A new brand book was compiled and published in 1970. This project commenced in March and was completed in early August.

## ALBERTA LIVESTOCK AND LIVESTOCK PRODUCTS ACT

### Stockyards and Stockyard Licensing

Licences were issued to 282 stockyards compared to 315 in 1969. This decrease was primarily due to smaller operators ceasing operation as a result of the change in the method of marketing hogs. Classes of yards were divided as follows:

B	C	D	E	F	G	TOTAL
17	31	60	3	3	168	282

A total of 56 Class D stockyards (auction markets) were in operation during the year. Three yards changed ownership and one new yard commenced operation.



The following table shows the number of livestock sold at Class D stockyards during the years 1966 to 1970:

	1966	1967	1968	1969	1970
Cattle and Calves	559,379	604,411	663,676	704,766	742,220
Hogs	331,715	463,783	473,071	419,481	587,812
Sheep	32,375	33,665	28,383	25,567	18,180
Horses	8,725	9,989	10,729	10,060	8,687

Class E and F stockyards were operated at Pakowki, Park Bend, Walsh, Lea Park, Empress and Veteran, the latter a new yard commenced operation in October, 1970. These yards handled 13,430 head of cattle compared to 11,129 head in 1969.

### **Livestock Dealers and Livestock Dealers Agents**

Claims were received against four livestock dealer's bonds.

Dealers and agents licensed totalled 852 compared to 876 for 1969. The changes in hog marketing made licensing unnecessary for certain individuals who had previously held a licence.

Twelve charges for livestock dealer violations were laid.

### **THE STOCK INSPECTION ACT**

A total of 2,155,481 head of cattle and horses were inspected through markets and on export. This is down 1% from 1969.

Inspectors held up proceeds of sales or actual animals for a total of 9,164 head for investigation of rightful ownership. The proceeds of sales covering 163 head were forwarded to branch headquarters for further investigation. Of the total held, 83 head of live cattle and the proceeds from the sale of 447 head were returned to the rightful owner other than the shipper with 37 head still under investigation at December 31.

Two hundred and seventeen butchers and hide dealer's licences were issued, an increase of 11 from 1969.

Fourteen branding demonstrations were conducted with approximately 700 people attending.

### **POUNDS**

Several extensions to existing pounds were made in improvement districts, leaving the total number of pounds at 162.

# **REPORT OF THE ECONOMICS DIVISION**

**1970**

**Director:**

James W. Clarke, B.S.A. M.Sc.

**Alberta Farm Purchase Board:**

Kenneth G. Taylor, B.Sc., (Chairman)

**Farm Management Branch:**

Bruce A. Hackett, B.Sc., (Head)

**Marketing and Statistics Branch:**

Thomas S. Rackham, B.S.A., M.Sc., (Head)

**Production Research Branch:**

Jack G. Gorr, B.Sc., (Head)

**Resource Economics Branch:**

Gerald B. H. Parlby, B.Sc., (Head)

**Systems Design and Data Analysis Branch:**

Richard T. Dué, B.S.B.A., (Head)

**Regional Economists:**

Richard S. Andersen, B.Sc., (Edmonton)

Melvin A. Cameron, B.S.A., (Lethbridge)

G. Roger Keay, B.Sc., (Fairview)

Alexander B. Lauder, B.Sc., (Red Deer)

C. Alan Nelson, B.Sc., M.Sc., (Vermilion)

Rudy G. Wiens, B.Sc., (Calgary)

## **OBJECTIVES**

### **Division**

The Economics Division emphasizes three areas of major concern: (1) co-operation in providing a continuing education service, as an integral part of other department programs, with the basic objective of assisting farmers in helping themselves to attain their individual and family goals; (2) to advise and counsel government officials on the economic implications of various existing and proposed policies and programs; and (3) the collection, analysis and dissemination of research information and agricultural statistics necessary for a more thorough understanding of agricultural trends, outlook, adjustments and social and economic development which is basic to rational agricultural policy at all levels.



## **Alberta Farm Purchase Board**

— To provide assistance to Alberta farmers for financing the purchase of economic farming units.

— To involve farmers having loans with the Board in a comprehensive farm management program, working closely with the Farm Management Branch and the Extension and Colleges Division.

## **Farm Management Branch**

— To provide extension personnel, agricultural producers, agri-business, and agricultural leaders with a working knowledge of the tools of management and decision making. The basic objective is to help farm producers help themselves in attaining their individual and family objectives by providing them, through extension, with knowledge of the tools of decision making. These tools include accurate and adequate information, knowledge of economics and management principles, a sound business analysis procedure supplemented by an efficient data collection system. The branch is primarily concerned with the development of one of Agriculture's most untapped resources—namely, management.

## **Marketing And Statistics Branch**

**Outlook**—To provide farmers and the agricultural sector, in general, with continuing current market information and analysis service, a short term market outlook and when required long term market forecasts.

**Education**—To provide extension personnel, producers and their leaders with a realistic and informed concept of marketing to aid them in appreciating these and associated problems.

**Marketing Research**—To obtain a fuller appreciation of the influence of marketing structures, processes and problems.

**Agri-Business and Market Development**—To analyze, present and predict future market potential for Alberta farm products, and assist in the development of a desirable environment at all levels of marketing.

**Agricultural Statistics**—To accumulate and disseminate information relevant to the agricultural sector.

## **Production Research Branch**

To provide producers, farm organizations, commodity groups, agri-business, government agencies and policy makers with information on factors relating to, or affecting the economics of agricultural commodity production and/or transformation.

The branch conducts applied research into factors influencing or affecting agricultural commodity production and/or transformation and evaluates the economic significance of such factors.

## **Resource Economics Branch**

This branch has three main functions to assist in solving long-range policy problems relating to water and land resource development in Alberta: (1) to collect, analyze and interpret economic information relevant to water and land resource development; (2) to appraise the economic implications of various resource programs; and (3) to advise on methods by which government programs can effect efficient physical resource allocation.

## **Systems Design And Data Analysis Branch**

To supply the information, system design and analysis requirements of the Department of Agriculture.

## **DIRECTOR'S OFFICE**

James W. Clarke took over the post of Director of Economics Division in July and initially spent his time familiarizing himself with the department's organization, both in head office and in the regions.

## **FEDERAL TASK FORCE REPORT**

The Federal Task Force Report which became available in May heavily involved several staff members of the Economics Division, particularly staff of the Marketing & Statistics Branch and the regional economists. Specific chapters of the report were summarized for a UNIFARM supplement which was edited and rewritten by staff of Marketing & Statistics Branch. Staff acted as resource personnel at meetings arranged by UNIFARM at various locations in the province. The meetings were designed to enlighten farmers on the implications of the Task Force Report.

The Economics Division was assigned the responsibility of preparing a position paper for the Government of Alberta on the Task Force Report. This involved considerable liaison with all the branches of the Department of Agriculture to obtain their response to sections of the Task Force Report relating to their particular activity. The position paper was presented to the Agricultural Congress in Ottawa, November 25 to 27.

## **GRAIN TRANSPORTATION AND STORAGE STUDY**

In co-operation with the Extension and Colleges Division, the Economics Division provided assistance to the Federal Grains Group who are attempting to evaluate the farmers' capacity for transporting grain, and are conducting research on the possible methods of reducing costs of transporting and handling grain.



## **BULLETINS**

The following bulletins were published during the year:

Incorporating the Family Farm Business  
Father-Son and Other Farm Partnerships  
Selecting Silos Using Present Value Techniques  
Selecting Silos Based on Economic Considerations

## **MISCELLANEOUS**

The University of Alberta and the Economics Division co-sponsored seminars by Dr. J. van Lierde, Agricultural Director, European Economic Community, Brussels. The seminars proved to be valuable from a long term outlook point of view as well as providing information relative to European experience in agricultural policy and adjustment.

## **ALBERTA FARM PURCHASE BOARD**

K. G. Taylor is chairman and H. Allam and J. M. Currie are members of the Alberta Farm Purchase Board.

## **FARM PURCHASE CREDIT ACT**

	<b>1970</b>	<b>1969</b>
Applications — Considered	180	165
Applications — Approved	114	104
Value of Farm Land	\$1,950,858.50	\$1,838,412.00
Credit Approved	\$1,343,082.74	\$1,358,562.22
No. of Loans Paid Off	107	131

## **FARM MANAGEMENT BRANCH**

### **FARM BUSINESS ANALYSIS PROGRAM**

The 1969 farm business analysis program was delayed due to staff shortages, inadequacies in the 1969 Alberta Farm Account Book and the necessity of having to rewrite the computer program early in the year. However, after considerable effort by all staff, the analysis was returned to individual farmers towards the middle of the year.

The 1970 farm business analysis program is well under way. In order to streamline the program, the Alberta Farm Account Book was revised in consultation with staff of the Extension & Colleges and Economics Divisions. In addition, transfer forms and input forms have been revised and the computer program designed. The branch is able to guarantee a one month turn around on farm records. This of course is dependent on the correctness of records sent in.

## **ENTERPRISE ANALYSIS REPORTS**

The following 1969 enterprise analysis reports were prepared in draft form by two new regional economists—Richard Andersen and Rudy Wiens, during their initial training period at head office.

Cow-Calf Enterprise Analysis Report

Crop Enterprise Analysis Report

Hog Enterprise Analysis Report

Cattle Feeder Enterprise Analysis Report

## **CANFARM**

The CANFARM (**Canadian Farm Management Data Systems**) program was more organized with the employment of four technical staff, who relieved professional staff of the routine necessary for showing farmers the manner of completing records, checking records before mailing to the computer, checking computer output before forwarding to the farmer, and assisting with year end records. Several training courses were held for technical staff and regional economists during the year and familiarization meetings were held with field staff of Extension & Colleges Division. In order to make the public aware of the system, T.V. programs were arranged in co-operation with MEETA.

The CANFARM system, being new, had several “bugs” in it. Most of these difficulties were resolved at Technical Advisory Committee meetings, at which Alberta representatives played a leading role.

## **EXTENSION COURSES**

Farm Management Branch has been involved to some extent in farm business management courses offered by Canada Manpower. The branch's role has been primarily in an advisory capacity regarding the course content. The courses will be conducted by district agriculturalists, bank staff and other experts; while regional economists and Farm Management Branch staff will act as resource personnel prepared to assist if necessary.

## **MISCELLANEOUS**

Farm Management Branch hosted the Western Farm Management Extension Committee meeting in Edmonton on September 21 and 22. The branch achieved a first in that the meeting was held in Government House. Representatives were from the four western provinces and universities.

## **MARKETING AND STATISTICS BRANCH**

Thomas S. Rackham, branch head, was seconded to the World Bank as a consultant in economic appraisal for the months of June, July and August. E. David Walker was acting branch head during this period.



## **PUBLICATIONS AND REPORTS**

A new format for the crop report was designed and accepted. Now called the "Crop and Livestock Report," it has a new banner and gives extended coverage, particularly in the area of livestock. Positive steps were taken to improve the quality of the report with the co-operation of correspondents. Twenty-five issues were released during the year.

Five issues of the "Alberta Farm Economist," also with a new banner, were released during the year. Five issues of a new regular publication, "Alberta Farm Market Analysis," were released during the year. These two reports deal with up-to-date market situation and outlook.

The "1967 and 1968 Statistics of Agriculture for Alberta" was published early in the year. The "1969 Statistics of Agriculture for Alberta" is being prepared for publication. There were 34 issues of agricultural statistics releases distributed during the year, and three surveys conducted for publication by the Dominion Bureau of Statistics.

In addition to the regular publications, staff of Marketing & Statistics Branch prepared several papers for presentation at various meetings and for publication in professional journals.

## **EXTENSION**

Marketing & Statistics Branch contributed to the normal winter extension programs. Staff played a large role in Direction '70 meetings, and were preparing for forthcoming Direction '71 meetings. A good deal of time and effort was spent in outlook conferences, provincial and national workshops and short courses, and in the department's marketing program.

Contributions were also made to meetings concerning the wheat inventory reduction program, the effect of the floating dollar on cattle marketing, the Task Force Report, and national marketing boards.

In order to classify and refine information sources, a library was organized with the assistance of staff of the Legislative Library. The branch is co-operating with the Agricultural Economics Department, University of Alberta, in connection with access to and improvement of their data bank on livestock and grain statistics.

## **RESEARCH**

A research study of the barley growers marketing and cattle feeding associations was carried out during the year and was nearing publication.

Other research activity has been in the area of hog marketing and the broiler industry.

## **PRODUCTION RESEARCH BRANCH**

### **FLUID MILK STUDY**

Tabulation and analyzing of dairy records for the 1969 fluid milk study was completed early in the year. Reports were presented before Public Utilities Board hearings in Calgary, Edmonton, Lethbridge and Red Deer. A report containing the total farm analysis and the dairy enterprise analysis was distributed to participating dairy farmers and interested parties in the milk industry. A computer analysis was provided for these farms for the first time.

Supplements to the revised Alberta Farm Account Book were prepared to meet the needs of the 1970 fluid milk study, and other cost of production studies.

The 1970 fluid milk study commenced toward the end of the year. Field trips were being carried out in the Calgary, Edmonton, Lethbridge and Red Deer regions to assist dairy farmers to complete their copies of the Alberta Farm Account Book. Summaries of records will then be compiled, tabulated and analyzed for presentation to the 1971 Public Utilities Board hearings.

### **PEACE RIVER COW-CALF STUDY**

A Peace River cow-calf study was conducted in co-operation with Program Development Division. A preliminary report of this two-year study was released.

### **CORN AND PEA STUDY**

Final trips were carried out to obtain information for a corn and pea study. Records have been compiled and analyzed with the aid of a computer program study. An initial report is being reviewed.

### **CONSENSUS RESEARCH DATA SHEETS**

The consensus research data-sheet format was developed, drafted and printed. This short form of conducting a research study into costs of production has proven very popular with the regional economists, who are receiving enthusiastic co-operation of other regional specialists and district agriculturists. The following **CRD** sheets were developed and presented at meetings during the year:

Apiary (Edmonton & Fairview)  
Potato Production (Edmonton & Lethbridge)  
Market Lamb (Edmonton)  
Mink Production (Edmonton)  
Greenhouse Operations (Edmonton)  
Fescue (Fairview)

Sprinkler Operations (Lethbridge)  
Cow-Calf Production (Edmonton)  
Forage Crop Production (Edmonton)  
Silage (Red Deer)



## **THEORETICAL FEEDLOT**

Plans have been formulated to produce a bulletin on feedlot management and management strategies. The bulletin will report on various events and situations that could occur with an actual feedlot operation. A record of the events, managerial decisions and strategies will be published monthly and distributed to subscribers. The first bulletin is scheduled for August, 1971.

## **MISCELLANEOUS**

A paper entitled, "The Appropriate Types of Farm Management Research for Meeting the Special Needs of Extension," was prepared and submitted to the research subcommittee of the National Farm Management Committee.

Terms of reference were drawn up for a land market value study to be carried out by a firm of private consultants. The Alberta Land Assessment Steering Committee met with the consultants and reached agreement on study procedure and methodology.

The design of a data handling system and the testing of computer programs used in the analysis of farm records was undertaken.

Preliminary discussions were initiated with Plant Industry Division concerning a study to determine the value of environmental horticulture in Alberta.

## **RESOURCE ECONOMICS BRANCH**

### **GULL LAKE STUDY**

A report on the economic feasibility of elevating and stabilizing the water level of Gull Lake was printed in January. The report was discussed with the Gull Lake Co-ordinating Committee at Lacombe and was delivered at a seminar at the University of Alberta.

### **STURGEON RIVER BASIN STUDY**

Phase I of the Sturgeon River Basin Study culminated in a report on the present economic activity in the Sturgeon Basin.

Phase II of the study, which started in September, was designed to develop projections on future water demands. Estimates were prepared on population projections, water based recreational use, oil field water injection demands, domestic water and sewage requirements, industrial water requirements, irrigation requirements and stock water use. A draft report was submitted to water Resources Division at the end of December for consideration.

Both reports are to be used for planning purposes by the Water Resources Division.

## **NAMEPI-KENNEDY CREEK FLOOD CONTROL STUDY**

A benefit-cost study was conducted on the Namepi-Kennedy Creek for a flood control and drainage project. The study was designed to establish flood frequency rates, determine the extent of damages resulting from floods and estimate benefits on drainage of the creek. Farmers along the creek were mail-surveyed in September to ascertain the extent of damage due to 1970 spring and summer flooding. Returns indicate no substantial changes in the results of the June report.

## **SOUTH SASKATCHEWAN RIVER BASIN STUDY**

Responsibility for the South Saskatchewan River Basin Study was transferred to the Department of Agriculture Economics, University of Alberta, under terms of a new contract, in order to allow Resource Economics Branch to complete the rest of its commitments to the Alberta Department of Agriculture. Work until the transfer included the development of statistics of manufacturing firms, and agricultural output estimates.

## **ST. MARY'S RIVER IRRIGATION DEVELOPMENT**

A joint study on the benefits and costs arising from alternative delivery systems in the western block of St. Mary's River Development commenced. Alternatives selected for initial consideration are polyethylene lined canals and concrete structures, concrete canals and structures, and low pressure underground irrigation pipe. The study was held in abeyance pending information on capital costs.

## **RANGE IMPROVEMENT STUDY**

A study to determine the extent to which range improvement is economically feasible on crown grazing leases administered by the Lands Division, Department of Lands and Forests was undertaken. A 20% mail survey of lessees has been initiated. The response rate was 46%. The returned questionnaires are being currently analyzed.

## **ECONOMICS OF GRAZING RESERVES**

A study for the Lands Division, Department of Lands and Forests was undertaken to primarily determine operating costs and the returns to capital invested in the provincial grazing reserves. Data about revenues, operating and maintenance costs, and capital costs is being assembled for analysis.

## **MISCELLANEOUS**

Resource Economics Branch have acted in an advisory capacity in several areas concerning resource development. These have included consultations on the Battle River Basin project, water financing, and the Bow-Highwood project; advice to a subcommittee of the Prairie Provinces Water Board on terms of reference on the proposed Saskatchewan-Nelson Basin Water Demand study; and preparation of reports for various government bodies.



## **SYSTEMS DESIGN AND DATA ANALYSIS BRANCH**

### **GENERAL**

A major task for Systems Design and Data Analysis Branch at the commencement of the year was to establish computer application requirements of the Department of Agriculture. A feasibility study was conducted by way of interviews with all branch heads in the department. Work priorities of the branch are assigned by Executive Committee on the basis of this study.

Computer terminals were installed in the 100th Avenue Building and the O. S. Longman Building. These terminals are connected to computers at the University of Alberta and the Provincial Data Centre. Plans have been made to utilize the department's TWX network as computer terminals with ITF (Interactive Terminal Facility) for use of regional staff. The system should be available in the first quarter of 1971.

### **PROGRAMS**

During the year, staff of Systems Design and Data Analysis Branch worked on the following programs:

- Soil Testing Program
- ROP of Beef Programs
- Hog Marketing Board Study
- HRDA Fur and Population Studies
- Cattle Brand Inspection Retrieval Program
- Veterinary Information Retrieval System

A computer program was designed to handle a variety of input information of different formats as well as produce a variety of reports. This program could be a major breakthrough for getting flexibility and variety in farm record analysis. It could also be of tremendous value for analysis, production and cost information and producing reports.

### **EDUCATION AND INFORMATION SERVICES**

The Systems Design and Data Analysis Branch organized and implemented several methods to educate and inform Department of Agriculture staff about the uses of computers. Seven systems design bulletins were issued during the year. Two "Computer Concepts" courses were held in co-operation with IBM. These courses received a very favorable response. A seminar was held at the O. S. Longman Building on use of the computer terminal located there.

A Synagraphic Computer Mapping program from Harvard University was adopted for use by the Department of Agriculture and the Provincial Recreation Committee. A course was held for potential users. The program displays data graphically or in report form.

A guide to using linear programming in agriculture was prepared and issued to all agricultural economists.

A copy of D.B.S. statistics on computer tape (**CANSIM — Canadian Socio-Economic Information Management System**) was ordered in co-operation with the Department of Agricultural Economics, University of Alberta.

A general analysis program (SPSS) from the University of Chicago has been set up, checked out and is now available to users.

## **REGIONAL ECONOMISTS**

Rudy G. Wiens was appointed Regional Economist at Calgary, and Richard S. Andersen at Edmonton. Both were kept in head office for a short period for familiarization purposes, and to write the Enterprise Analysis Reports which had been delayed due to staff shortages.

## **ORGANIZATION**

The department's regionalization plan brought about a revised role for the regional economists, who represent the division in all aspects of its work. With this in mind, the regional economists might be regarded as the core of a field service branch under supervision of a branch head—a position which has been established but not yet filled.

## **PROGRAMS**

Regional Economists have spent considerable time on the farm business analysis program, the CANFARM program, implications of the Task Force Report, short courses, Canada Manpower courses, seminars, program planning meetings and activities associated with regionalization.

Roger Keay, Fairview, developed an exercise book for the revised Alberta Farm Account Book. This is a shortened form of the Account Book and is intended for use as an educational tool. Mr. Keay has made extensive use of the CRD concept and has received favorable response.

Alan Nelson, Vermilion, set up a farm management committee composed of three district agriculturists, the regional agriculturist and himself. The committee hopes to emphasize other aspects of management while maintaining the emphasis on farm business analysis and record keeping.

Mel Cameron, Lethbridge, made extensive use of the CRD concept and has received several requests for information about this research method. He presented a paper entitled, "Production Costs and Management Control for Potato Production" to the Alberta Potato Growers convention.



Alexander Lauder, Red Deer, has been enthusiastically involved in the management by commitment program of the department within the Red Deer region. He sends "CANFARM Notes" to participating farmers to help them keep up-to-date on developments in this system and has forwarded a great deal of other written material to farmers and district agriculturists. Ninety minutes of T.V. coverage has also been prepared to run early in the new year. Some very detailed farm management studies and forward planning has been carried out on an individual basis with selected farmers. This material has been circulated to district agriculturists and hopefully will form the basis of inservice training at the regional level on management techniques. Further development in this detailed approach is envisaged.

# **EXTENSION & COLLEGES**

## **ANNUAL REPORT**

C. J. McAndrews, B. Sc., M.Ag., P.Ag., Director, Extension & Colleges Division

L. W. Rasmusson, B.S.A., M.Ed., P. Ag., Associate Director (Extension)

J. E. Hawker, B.Sc., B.A., P.Ag., Associate Director (Colleges)

C. A. Cheshire, B.Sc., P.Ag., Head, District Agriculturist Branch

### **HOME ECONOMICS BRANCH**

V. G. Macdonald (Mrs.), B.Sc., Head, Home Economics Branch

M. M. Cox (Mrs.), B.Sc., Associate Head

### **INFORMATION BRANCH**

W. W. Wismer, B.S.A., M.S., Head, Information Branch

### **AGRICULTURAL ENGINEERING BRANCH**

J. L. Reid, B.Sc., B.S.A., M.Sc., P.Ag., Head

### **REGIONAL AGRICULTURISTS**

J. G. Calpas, B.Sc., M.Ed., P.Ag., Regional Agriculturist, Lethbridge

H. M. Douglas, B.Sc., P.Ag., Regional Agriculturist, Calgary

R. D. Price, B.Sc., P.Ag., Regional Agriculturist, Red Deer

J. S. Duncan, B.Sc., P.Ag., Regional Agriculturist, Vermilion

H. J. Fulcher, B.Sc., P.Ag., Regional Agriculturist, Edmonton

W. L. McNary, B.Sc., P.Ag., Regional Agriculturist, Fairview

### **GENERAL**

Post secondary, continuing and extension education provided by the Alberta Department of Agriculture were evaluated in 1970 with the intention of adjusting to meet the needs of the people in the seventies. Personnel of the Extension and Colleges Division are the key group assigned to the task of carrying the department's program to the people in an interesting and motivating process.



The function of the Extension and Colleges Division has been to seek from the people their needs and pursue with them the opportunities for meeting needs and examining alternatives; then planning and implementing systematic educational programs within the framework of the Department's policies that will assist people achieve specified end results.

The program planning process was strengthened by increasing grass-roots inputs from organized advisory committees. Further support of the process evolved through introduction of management through commitment and the adoption by the department of a planning schedule. C. J. McAndrews was appointed director of the division July 1, 1970. He succeeded Mr. S. S. Graham who retired after a long and distinguished record of service in Alberta Agriculture.

Those who received the services offered by personnel in the division in 1970 included family farms, business or commercial farms, low-income adjusting families, small and large scale specialized clients, and students from many sectors of rural and urban communities. As the number of traditional family farms continued to decline, more services were provided to commercially developing farms (most of which are operated by families). About 30% of the extension personnel worked with low-income adjusting people. The trend to activities for this latter group was increased over previous years.

The range of activities and clientele was very broad. The question of emphasis on certain programs and for specific groups of people was being examined at the year's end.

A favorable balance existed between service and educational functions. The personnel had a moderate to high degree of confidence regarding the purpose and clarity of their roles. The educational functions were given priority with service activities being recognized as ways and means of developing self-help techniques. The time allocation to structured or planned activities averaged about 40% for extension personnel. A target allocation of 60% was being examined during the latter part of the year.

The use of college facilities and faculties was more closely integrated with extension activities by the co-operative development of courses in the area of continuing education. These courses were offered at the colleges and at convenient locations in other communities. A sharp increase in the number of courses offered and scheduled occurred in the final quarter of the year. Further development and increases in courses were forecast for 1971. Support from the Program Development Division, and Alberta Vocational Training Branch and Canada Manpower greatly accelerated the opportunities for agricultural people to take advantage of continuing education programs.

The Information Branch reproduced and distributed technical information by radio, television, press, publications, and supplied communications equipment in support of all department personnel and programs. The use of fast and effective communications media was increased. Additional opportunities were being explored so that information may be clear, specific but brief, in depth when necessary, and readily available for retrieval by both department personnel and the public.

The prime purpose of the division was "to help people help themselves, through programs of continuing education, to achieve their economic and social goals". The colleges developed courses to meet new training requirements in agriculture, agri-business, home economics and have responded to expressed needs of the communities. The programs and activities of the extension branches reflected increased emphasis on adjustment, management and matters related to marketing and product utilization. Many of these efforts were planned and carried out in co-operation with agricultural and other organizations. Increased efficiency in the organizational structure and administration provided the means for more effective communication and services to the public. Extension programs and activities will increasingly be evaluated in relation to the educational process and the planned objectives. The management through commitment method of setting objectives and organizing to achieve these will provide additional opportunities of evaluating results objectively.

### **NAMES OF HOMES PROGRAM**

Number of homes registered in 1970 — 46  
Total registration for the Province — 896

### **MASTER FARM FAMILY PROGRAM**

Five families received the award in 1970 as follows:

**The Harry Ramsay family of Markerville**

**The Arthur Ziegler family of Vegreville**

**The Leon Fontaine family of St. Paul**

**The Alex Gyorfi family of Bow Island**

**The Ed Newton family of Del Bonita**

There were 17 families nominated at the district level.

### **AGRICULTURAL ENGINEERING BRANCH**

During the past number of years, there has been a gradual but noticeable decline in requests for short courses of a general nature, and also for courses in some of the specific fields in Agricultural Engineering. Farmers are requesting more information and services on an individual basis to assist them in improving their production efficiency, particularly in specialized enterprises.



The Agricultural Engineering Branch met this change by having each engineer specialize in one or two fields of the discipline. The increase in requests for vegetable storage information necessitated limited applied research and study on various farms and at the Alberta Horticultural Research Centre at Brooks. Other regional agricultural engineers carried out similar work and study in other agricultural engineering fields, such as the control of agricultural wastes, animal environmental control, farmstead mechanization, water treatment, and seed and feed processing. All activities necessitated the close co-operation and participation with other provincial and federal government departments, universities, and equally important commercial and industrial establishments. This co-operation resulted in additional resource personnel which the farmer called upon directly or indirectly for information and assistance.

Evidence of the developing trend for direct consultation with extension engineers was shown by the increase in office calls, telephone calls, and farm calls in most of the regions.

The vocational training programs, such as the rural welding clinics, tractor and machinery maintenance schools, and the evening welding schools, which are administered and conducted by the Agricultural Engineering Branch, have continued to provide the training requested by the rural public. The Indian and Metis people of the province have become more interested in training in these vocational subjects, and the branch made a special effort to meet all their requests. Although the branch has conducted these special schools, native people were successfully encouraged to participate in the scheduled vocational type of school.

#### **AGRICULTURAL ENGINEERING BRANCH**

<b>Schools</b>	<b>No.</b>	<b>Attendance</b>
Farm Building (General)	9	174
Swine Building		
Sewerage & Plumbing		
Electrification	5	93
Machinery	5	250
Tractor Maintenance	13	253
Rural Welding Clinic	18	396
Evening Welding Schools	13	182
Water & Water Well Development	4	155
Beef Production	11	292
Swine Production	11	440
Dairy Production	5	265
Others	6	62

<b>Demonstrations and Field Days</b>	<b>No.</b>	<b>Attendance</b>
Water & Sewerage	2	31
Forage	4	113
Farmstead Mech. (Manure Handling, etc.)	4	1,522
Machinery	2	31
Harvesting	2	115
Building Tours	14	826
Dairy	2	28

<b>General</b>	<b>No.</b>	<b>Attendance</b>
Progressive Farming Days	1	2,000
Short Courses	11	327
Meetings (a) Group Meetings with farmers	49	
(b) Professional, Seminars, etc.	263	
Farm Notes	12	
T.V. Programs	13	
Radio Programs	27	
Plan Production (a) For General Distribution	9	
(b) Individual	68	
Bulletins & Pamphlets Prepared	6	
Farm Calls (a) Building	676	
1070 (b) Farmstead Mech. & Materials Handling	120	
(c) Water & Sewerage	102	
(d) Machinery	22	
(e) Others	150	

### **DICTRICT AGRICULTURIST BRANCH**

This report as it has evolved, using statistics to indicate farm production and practices, or more recently, by recording farmer contacts and method of contact in each of the major subject matter areas, is no longer adequate to reflect the contribution of this widely dispersed field staff. Emphasis on grass roots involvement in recognition and priority rating of needs in the agricultural field, some of which could be satisfied by an extension contribution, has tended to make a province-wide summary of activities much less significant than when district programs were more uniform.



A second major deficiency of the summarizing procedure is its inability to reflect intensity of educational input. Regionalization with its program planning procedure and its support resources accentuated the deficiencies of the reporting system in use, and pointed out the need of a new evaluation method that more closely linked progress and accomplishments to objectives. The search goes on for an objective means of recording or calculating the behavior change attributable to extension, but in the meantime a better means of recording both the breadth and depth of the input, together with subjective evaluation of effectiveness, will be used to indicate progress. This report reflects this trend by pinpointing some of the priority projects regionally. At the same time, statistics that did not reflect a significant change due to the extension content, have been omitted, even though they were reported by both districts and regions.

## **REGIONAL EXTENSION ACTIVITIES**

Public affairs and market promotion was listed by three regions as very significant or most important in the years extension activities. Most of the programs in this category were top down, but widespread public acceptance indicated a local need for this information. Several were of an emergency nature and like the two general surveys regarding grain transportation and grain storage, seriously disrupted planned activities. All regions expended considerable effort in this new arena through meetings on Direction 70, outlook "Operation L.I.F.T.", Alberta forage seed policy, agricultural task force report and in some cases commodity projections. Region 1 listed this category as a highlight and top priority, while the other two southern regions rated it very high. Region 2 included co-ordination with agri-business as very important. Regions 1, 2, 4 and 5 all listed promotion work at exhibitions and fairs, while the parkland barbecue at Lacombe was an outstanding example of market and consumer education by a local team.

The team approach to extension was mentioned specifically by regions 1 and 5, in the first case in relation to the warble control program and agricultural service board projects, and in the case of Vermilion region, the method was used in the approach to farm management.

Increased personal contacts with farmers was a priority objective of regions 1, 5 and 6, with the Vermilion region reporting a 32% increase in this category over the year. Edmonton region listed this need in relation to agricultural engineering.

Personal contact increased generally throughout the province with over 144,000 contacts, a 17% increase. Farm calls remained constant but office and phone calls increased significantly. There were a total of 5,400 meetings, a 6% increase, but attendance of almost 238,000 was up 20%.

In the plant industry sector, the two major programs of L.I.F.T. and the provincial forage program were the major reasons for almost 80% increase in meetings and attendance during the year, and a doubling of office and phone calls to 24,000. On the other hand, soil sampling fell off to 50%, or just over 5,000 while meetings and demonstrations in this area fell to just over one-half. Horticultural activities showed a slight increase with the exception of tree orders, which were reduced due to considerable spring harvesting. The improvement in handling of the trees from Oliver was noted and commended.

Regional highlights in plant production included pilot projects on grain corn and investigations and promotion of alfalfa dehydrating and fresh vegetable storage and processing in region 1, range management demonstrations and tours in regions 2 and 4, forage production and management in region 6 and silage promotion in region 7. This last item was a joint municipal district extension project in Peace River, resulting in 33 farmers in that district using silage for the first time.

Increased interest in the animal industry was evident throughout the province with meetings, attendance, office calls and farm calls showing an increase of 15% to 50%. This interest was reflected in all aspects of the industry such as herd health, where attendance at meetings more than tripled, in pest control with a 50% increase in contacts and in R.O.P. with over 60% increase in herds on test. The warble control program exploded, with region 6 taking the lead. All ten districts formally adopted the program. Interest was widespread in other regions, with the east-central portion of the province giving widespread support.

In R.O.P. programs, region 4 showed a 70% increase in herds on test, and region 5 had a 50% increase. Regions 2, 6 and 7 also showed substantial increases in this project.

Agricultural economics at the district and regional level had to adapt their activities to the changing economic situation. While the anticipated increase in participation, especially in records, budgets and analysis did not materialize, there was a slight increase in total contacts. Decreased interest in areas of taxes, insurance, estates, leases, etc. was much more than offset by the outstanding increase in the marketing field, where meetings increased over three-fold and attendance was up over five times, with provincial totals of 134 and 11,500 respectively.

The increased resources for farm management through the C.M.C. courses, which were only made available late in the year, has been noted by all regions. In addition, the sale of 500 farm account books in region 1, with the expectation of about 10% completed for analysis at year end was noted, as was the fact the poultry specialist has 34 of his producers on enterprise analysis. Region 5 mentioned the team approach by all regional specialists to farm management.



The expected increase in CANFARM did not take place, but in spite of this, region 4 listed 39 on the program. This system was more complicated than had been indicated.

Agricultural engineering showed an increased interest in farm buildings, farmstead mechanization and feedlots. Snow and wind control information developed in region 1, received widespread acceptance. Decreased activity in areas of land development and field machinery generally reflected the tight economic condition.

District Agriculturists were less involved in junior activities, but there seemed to be general acceptance of 4-H operations conducted by the Department of Youth. The number of groups and the number of members increased. District agriculturists have generally acted only as an invited resource personnel.

## **EXTENSION GENERAL**

Involvement of local people in program planning led to an increase in advisory committees, of which there are now 30. Assessment of these ranged from highly favorable to "floundering helplessly". It appeared that a large portion of the difference between the effective and ineffective advisory groups lay in the opportunities they have for learning their new role. The leadership training officer received commendation for his work such as the regional leadership training session held for advisory groups in region 1. The Regional Agriculturist in region 2 provided leadership training for the advisory groups there.

There was increased participation with the farm organizations, mainly because of involvement in the "Task Force" reports, but also in part by Direction 70. Generally, in the area of co-ordination there was increased contact between the D.A.'s, other advisory groups and planning commissions. Region 2 listed these co-ordinating functions as one of the highlights for the year.

In the area of staff training, a one week seminar in livestock management, breeding and nutrition involved all of the staff. Regional and individual training included attendance by fourteen D.A.'s at the sheep symposium and three at the cattleman's short course. A large number of D.A.'s and regional agriculturists attended courses on extension, supervision, management, area development and agricultural subject matter. Two members are on educational leave, while two others completed their program during the year. Staff were almost twice as involved with conventions, conferences, tours, research station conferences, provincial and regional training sessions as they were in 1969. The need for individual and branch training priorities was evident.

## **MASS COMMUNICATION MEDIA**

The major change was a 75% increase in press releases from the D.A. offices, which totalled 1,778 in the year. This was accomplished in spite of a 30% drop in participating newspapers, which are now down to 93.

In summary, 1970 saw some new areas of involvement of the district agriculturist staff, e.g. Public Affairs, further development in planning with the local people, and a busy year in providing production marketing and management information. It further pointed out the need for a more effective evaluating and reporting system.

## **HOME ECONOMICS BRANCH**

More emphasis was given agricultural products promotion programs. The product "display demonstration" approach was eagerly supported by fair boards, local producer associations and other agencies to meet the need for change and the trend toward educational programs. The home economics laboratory played a vital role in supporting promotion programs.

There is an evident increase in branch activities based on the interdisciplinary approach. The Edmonton district home economist programs, measured by the extensive demand, demonstrated to co-operating agencies the need for home economics extension in urban centres. The federal department of Indian Affairs and Indian band councils provided a trust fund to enable district home economists to conduct basic homemaking courses with Indian women and to train a corps of Indian women to become instructor-aides. Other interdisciplinary programs involved work with the Department of Social Development, Municipal Recreation and other interagency committees.

Increased involvement through T.V. and radio programs led to greater awareness of home economics branch programs, especially in urban areas. It is difficult to restrict service to rural areas and small urban centres.

With the advent of the Department of Consumer Affairs, consumers and consumer groups became more confident and vocal in expressing their need for consumer information and satisfaction for money spent on goods and services. This concern led to increased involvement by branch staff in consumer education programs.

## **NOTE**

- (1) The 1970 annual report form was updated and does not coincide with 1969 in all categories.
- (2) The 1970 figures include interviews only and are marked with an \*.

The 1969 figures included interviews, phone calls and letters.

Phone calls and letters for 1970 are given in the "Summary of Activities" section.



- (3) "Meetings" also include those sessions of ½ day's duration that were held as part of an in-depth series.
- (4) The marked increase in many 1970 activities may be partly attributed to additional staff and fewer and shorter periods of position vacancies.

## FOOD AND NUTRITION

	1969	1970
Meetings, Demonstrations	215	558
Attendance	5,118	17,480
*Interviews	5,334*	2,463*
Home Visits	192	167

The national concern among health and government authorities for mental and physical well-being, as related to nutrition and preventative medicine, was evident in growing public interest in food quality and information.

The weight control series, "Losing to Win", was most popular single program. This reflected an increasing awareness of the dangers of excess weight.

An excellent growing season and the economic situation led to an extraordinary number of requests for information about food preservation, planning economical meals and basic food preparation methods. Work with welfare and native groups centred on basic food preparation, nutrition and sound buymanship.

Promotion of Alberta products, particularly pork, potatoes, honey, rapeseed oil and poultry was emphasized through the mass media, fairs and the use of a promotion caravan. The facilities at the laboratory were used for product promotion lunches, food testing, and new food product evaluation.

## HOME MANAGEMENT

	1969	1970
Meetings	258	209
Attendance	5,320	4,826
*Interviews	3,812*	798*
Home Visits	130	280

District home economists encouraged and implemented more meetings dealing with wills and estate planning in co-operation with resource people in their community. Fifteen thousand copies of the publication "Wills & Estates for Albertans" were distributed in 1970 in conjunction with programs on wills and estate planning.

A five day consumer economics workshop for staff was conducted in Olds by Mrs. Alberta Johnston from Oregon. As a follow-up to this workshop, a series in consumer education was developed by the home management specialists. These included talks: "Managing Your Family's Business Affairs", "Teaching Children Money Management", "Teenagers Use Credit — We can Teach Them How", "Is This Where You Can Save? — Food", "Is This Where You Can Save? — Clothing". These talks along with handouts were distributed to be used by all the D.H.E.'s.

D.H.E.'s also placed more emphasis on presenting consumer education information using the mass media: newsletters, newspaper columns, radio and television.

The largest number of individual requests were for information of buymanship of appliances, budgeting, record keeping and living cost data.

Two articles were prepared for the "Canadian Consumer" magazine on the buymanship of washing machines and ranges.

**FAMILY LIVING**

	1969	1970
Meetings	236	233
Attendance	10,983	9,985
*Interviews	1,372*	392*
Home Visits	—	60

The need and demand for family living programs was paramount. Meeting this demand was limited by staff training and experience.

There is a real need for family life education in our changing world. Improvement of family life, preparation for marriage and child rearing, guidance for parents, and an improved emotional climate in family life are required to turn back the mounting tide of youthful maladjustment and delinquency. Other well intentioned social services cannot do the job alone.

**HOME DESIGN**

	1969	1970
Meetings, Demonstrations	113	172
Attendance	3,084	4,231
*Interviews	3,473*	1,220*
Home Visits	713	816
Homes planned — complete and partial		178
Homes remodelled — complete and partial		172
Other plans and community plans		86



Requests for house plans declined due to the lack of money and the high cost of building. However, requests for buymanship information on interior finishing materials such as carpeting, hard-surfaced floor-coverings and draperies increased steadily. More television and news articles to dispense this type of information led to increased individual assistance.

Topics most frequently presented at meetings and series include: furniture refinishing, window treatments, and buymanship of interior finishing materials and furnishings.

The home design specialists conducted workshops, prepared publications on entries, hallways, bedrooms, decoupage, etc. and developed promotional and display work for Alberta agricultural products.

### **CLOTHING, TEXTILES, HANDICRAFTS**

	<b>1969</b>	<b>1970</b>
Meetings, Demonstrations	635	1,567
Attendance	11,676	28,108
*Interviews	4,496*	3,053*
Home Visits	265	264

There was a steady demand for information on new fabrics — their selection, care, special sewing techniques, tailoring, re-makes, general finishing and sewing knits. With the introduction of textile labelling laws and care labelling symbols, increased demand can be expected. The home economist had this type of useful, unbiased information which was otherwise lacking in both rural and urban areas.

Handicrafts exhibited at fairs and conventions, have generally increased in their practicality and design value although the number of entries has reduced substantially. Economic factors may account for less money being spent on hobbies, or the individual need for competition may be reduced by the increasingly competitive nature of life today. Larger fairs are replacing the crafts competition with displays of well designed interesting creative work by local craftsmen.

According to DBS, the recreation and reading costs increased by 5.6 points in the last year. Considering the economic situation, people may chose to "do their own thing" with their leisure time, at considerably less cost than ready-made recreation.

### **YOUTH WORK, 4-H and OTHER**

	<b>1969</b>	<b>1970</b>
Meetings, Demonstrations	184	131
Fairs, camps assisted	—	6
*Interviews	723*	439*
Home Visits	32	51
4-H Council Meetings	56	19
Number of activities judged	—	112

Home Economists were involved as resource people in subject matter and meetings for 4-H. They assisted with camps and judged 4-H projects.

## **PUBLICITY AND INFORMATION**

	<b>1969</b>	<b>1970</b>
Newspaper articles written	1,172	1,189
No. of newspapers using articles	101	102
Newsletters written	135	146
Radio and T.V. releases	106	138
Radio talks	262	179
T.V. Presentations	142	206
Information leaflets developed	—	217

## **OTHER ACTIVITIES**

Over 478 meetings were conducted in co-operation with other departments and agencies. Home economists conducted 200 home visits and 729 interviews at the request of these agencies. They participated in 498 administration meetings both policy and advisory. The number of professional association meetings attended by the home economists total 130.

## **SUMMARY OF ACTIVITIES**

	<b>1969</b>	<b>1970</b>
Meetings held, Demonstrations	3,290	4,358
Attendance	96,975	118,074
Meetings co-ordinated only	—	170
Short Courses Held — number	22	34
— number of days	—	80
— attendance	2,279	2,759
*Interviews	8,225	11,511*
Home Visits	2,073	2,108
Phone Calls	24,658	31,939
Letters Written	18,662	16,691
Public relations functions attended	500	519
Tours, Field Days	27	176
Master Farms Judged	17	30

## **INFORMATION BRANCH**

The Information Branch provides mass media programs to support the efforts of Department of Agriculture staff in their efforts to help rural people help themselves.

Several changes in operation occurred in 1970. The publications and visual aids section of the Extension and Colleges Division formally became a part of the Information Branch. Early in 1970 the Metropolitan Edmonton Educational Television Association (MEETA) went on the air and this branch presented a daily program called "Farm and City Today" which was produced in co-operation with MEETA.



The agricultural weather forecast was discontinued in 1970 due to a lack of farmer response and because of other commitments by the branch to new activities; however, late in 1970 the Broadcasters Association of Alberta requested the government to reinstate this forecast and this request was under consideration by the government at year end.

Most of the Information Branch participated in the department's increased effort to expand markets for Alberta products. A number of producer groups consulted this branch about their proposals for promotional and advertising campaigns and other department marketing activities were supported with displays, leaflets and consumer education releases on radio and television and in newspapers.

An inventory was made of various department newsletters and fact sheets and by the end of 1970, plans were underway to establish a centralized distribution of applied scientific agricultural information to special interest groups using the agdex system of filing and retrieval. People in government and agri-business expressed a need for more technical agricultural information during the year and several agricultural information storage and retrieval systems were being examined.

## **GRAPHIC SECTION**

This section provides graphic art support for department of agriculture staff including TV graphics, design and layout of publications and display design.

A logo was prepared and approved by the Minister for department use.

An Alberta products display was designed for the "Farm and Ranch Show" held in Edmonton early in 1970. This display was also used by field staff at a number of agricultural affairs. Another smaller agricultural product display was also prepared for use by field staff. A trailer was designed for use in a pork promotion campaign. This trailer was designed so that by changing a few panels it could be used to support the promotional activities of other commodity groups who request it.

Staff of this section were also consulted about the suitability of various promotion materials proposed by commodity groups who were seeking financial assistance from the government for their product promotion campaigns.

## **PRODUCT PROMOTION**

The product promotion officer maintained a liaison with provincial commodity groups, participated in their promotion campaigns and supported these through her programming on radio and television.

She assisted the Alberta Hog Producers Marketing Board in the development of their pork promotion campaign and assisted with kick-off dinners and exhibits at fairs.

Rapeseed oil was promoted at Alberta product luncheons and several food fairs. Press releases and pictures of products made with rapeseed oil were well received by women's editors of the daily papers in Alberta.

Dairy products were promoted through work on the Dairy Princess Committee and by promotion lectures. Assistance was also provided in planning "**Milk Is Marvelous**" for Calgary Exhibition and Stampede Association.

Assistance was also provided to the turkey promotion conducted in Edmonton and Calgary just prior to Christmas.

The product promotion officer helped arrange the gourmet meat show sponsored by the Edmonton Exhibition Association. Both lamb and pork were promoted extensively at this show. The consumer's viewpoint on lamb was presented at the Alberta Sheep Symposium.

Product promotions by the various commodity groups were supported by consumer education material presented on radio and television which are listed below:

**Radio — 167 CBC noon programs**

**— 161 to eight other radio stations**

**Television — 37 segments for Marketplace (CFRN)**

**— 26 live Checkout programs (MEETA)**

**— 30 other programs (MEETA)**

## **PRESS SECTION**

During the year the branch was responsible for releasing 244 items in "Farm Notes" and 49 agricultural research reports in "Science and the Land". Many of the "Farm Notes" items dealt with policy changes announced or contemplated by both the Alberta and federal governments. These included such matters as the Task Force report, LIFT, the Alberta Department of Agriculture position on the federal tax reform proposals, the market outlook, the Alberta Department of Agriculture water development policy, crop insurance, pesticide and pollution policies, etc. The "Science and the Land" reports covered a cross section of research carried out at three federal research stations, the University of Alberta, and occasionally, applied research by Alberta Department of Agriculture personnel.

Also during the year the branch prepared and distributed 72 press releases relating to staff appointments, promotions, departmental projects and government policy changes or proposals.



In 1970 an extensive reader survey was undertaken to determine the needs and preferences of those who receive "Farm Notes" and "Science and the Land". The survey enabled updating of the mailing list and also provided information which can be used to establish a distribution and filing system based on the agdex system currently used by the Canada Department of Agriculture.

Seven new slide kits and scripts were added to the slide library during the year and a number of existing sets were expanded and revised.

## **PUBLICATIONS AND VISUAL AIDS**

There is a growing demand by department staff and the public for quick access to scientific and applied research information. This section is co-operating with the Program Development Division to develop a current awareness and retrospective research retrieval system for the department. This information system will include 100,000 items from "Bibliography of Agriculture", 3,000 U.S. government translations of Iron Curtain literature in agriculture and 8,000 agriculture meeting reports and papers per year.

Assistance is provided to district offices to develop the agdex filing system for retrieval of agricultural records or information. It also helps to develop methods of disseminating technical information to the department, agricultural industry and commercial and family farms.

### **Publications**

Brochures, bulletins and pamphlets were prepared to provide extension workers with tools for teaching and to answer the thousands of individual requests for specific information. Just over 1,000 publications on agriculture, homemaking and farm building plans are available to the public. Fifty-six new publications were printed during 1970 with 14 more in various stages of progress.

The last year saw a great demand for publications from school teachers and students but because of the cost it was impossible to supply the individual requests from school children. Negotiations are underway with the Department of Education to find a better way of serving this need.

Several Alberta publications were purchased by Departments of Agriculture in other provinces and in a few cases, suitable publications were purchased from them. There appears to be a good potential for interprovincial co-operation in the preparation and purchase of some kinds of publications. Bulk orders of some publications are obtained free of charge from the Canada Department of Agriculture and commercial companies for distribution to farmers.

The distribution of publications were as follows:

	Number	Request
Agriculture Section	425,615	7,299
Home Economics Section	158,343	2,158
Building Plans	27,534	
TOTAL	<u>611,492</u>	

### Visual Aids

A central pool of audio visual equipment is maintained for department personnel. This covers a wide range of materials including PA systems, film and slide projectors, overhead projectors and tape recorders to mention a few. Five hundred and ninety requests were handled during 1970.

This office also maintained a small inventory of displays and co-ordinated the bookings for these for the department.

### Central Duplicating, Mailing and Supplies

Service through the central duplicating centre increased by about 10% during 1970. There was an 800% increase in the use of addressograph equipment. Progress is being made in using this equipment to make technical information available quickly to district extension staff and their clientele.

Stationery and office supplies were maintained for headquarters staff and requests from the field for similar materials were co-ordinated through this office.

### RADIO PRODUCTION

During 1970, "Call of the Land", the Alberta Department of Agriculture's 10-minute Monday to Friday farm broadcast was aired 261 times on eleven Alberta radio stations. The following stations carried the broadcast throughout the year.

CKUA — Edmonton	CKYL — Peace River
CFCW — Camrose	CKRD — Red Deer
CJDV — Drumheller	CFGP — Grande Prairie
CKSA — Lloydminster	CHEC — Lethbridge
CJYR — Edson	CHAT — Medicine Hat
CJDC — Dawson Creek	

"Call of the Land" was used extensively to promote and publicize the services of the Extension & Colleges Division of the Alberta Department of Agriculture. Current information was provided on federal and provincial farm policy. As in previous years, extensive use was made of personality interviews to provide closer association between research and extension personnel and the agricultural producers of the province.



## Evaluation

The Bureau of Broadcast Measurements Survey provides a partial assessment listener response to "Call of the Land". Four of the eleven stations carrying the program subscribed to the B.B.M. survey in the past year. Combining these figures with the most recent available from the other stations the report indicates that the approximate listening audience for the broadcast is 124,500 persons once or more per week. The program was carried by all stations during the noon-time period.

## Programming

Efforts were made to provide coverage of all segments of the agricultural industry. Much of the material originated within the Alberta Department of Agriculture. A total of 1,115 items were used on the 261 programs. The following table provides a breakdown of the material and the number of separate topics dealt with during the year.

General Agriculture	98	Livestock	215
Farm Safety	11	Economics	181
Crops, Soil & Water	99	4-H	10
Poultry	25	Dairy	39
Veterinary	20	Horticulture	64
Agricultural Engineering	24	Pest & Weed Control	62
Colleges	16	Fur Farming	16
Consumer Information	9	Apiculture	8
Promotion	211	Farm Organizations	7

The majority of program material was directed to the individual farm operator; however, many programs carried items of interest to the housewife, as well as the urban dweller. Promotional time was provided for events sponsored by the Alberta Department of Agriculture and other agricultural organizations. Agricultural extension courses were widely publicized.

For the thirteenth consecutive year, interviews and reports from the Toronto Royal Winter Fair were fed daily to the eleven participating stations. In addition, night press reports on Albertan's activities at the Royal were provided for Alberta dailies.

"Call of the Land" was produced, recorded and distributed from the studios of the Information Branch. A total of 5,373 "Call of the Land" broadcasts had been released as of December 31, 1970.

## TELEVISION

In co-operation with the Metropolitan Edmonton Educational Television Association, the Information Branch produced and aired 220 television programs of agricultural and consumer interest.

**“Farm and City Today” (FACT)** a 15-minute production was televised daily on channel eleven Edmonton. At the year end four commercial stations CHCT-TV, Calgary; CHAT-TV, Medicine Hat, CJDC-TV Dawson Creek and CKSA-TV, Lloydminster provided the Department of Agriculture with air time for this daily program. MEETA facilities were provided for duplication and the programs were made available to extension staff and station farm directors for incorporation into their local television programs.

An additional 25 programs were produced for a weekly series known as **“Leisure Is Fun Time” (LIFT)** on such topics as interior design, wood finishing, simple automobiles and animal care and training. These programs were produced with the co-operation of the Agricultural and Vocational Colleges staff, the Alberta Veterinary Medical Association and the Northern Alberta Canine Association. In a summary of channel 11 viewing audience surveyed during November 2-15, 1970 by the Bureau of Broadcast Measurements, “LIFT” had the second largest audience for a locally produced program.

A three day television short course was provided for extension personnel in co-operation with the department of communications media at the University of Calgary. Portable television equipment was made available to extension personnel for the purpose of taping and reviewing at subsequent meetings events of special interest to agricultural producers.

Thirteen thousand feet of 16 mm film was shot by the Information Branch in producing fifty film items on various agricultural topics. Film and Photo Branch provided an additional 5,000 feet. The agricultural film library formerly administered by the Film and Photo Branch was incorporated in the Information Branch. There were 440 requests for film and 70 requests for slide kits during the year.

The National Film Board, Alberta Department of Youth and the Alberta Department of Agriculture established a catalogue of 150 current films of particular interest to residents of rural communities. These films were reserved at the National Film Board offices in Edmonton and Calgary for the exclusive use of the departments of Youth and Agriculture.

The Information Branch of the Alberta Department of Agriculture is the only agricultural information source in Canada providing daily radio and television programming.



## LEADERSHIP DEVELOPMENT

The leadership office carried forward its objective of assisting community leaders, elected officials and departmental staff to further develop leadership and communication skills, a better understanding of group dynamics, human relations and family living.

Workshops were held in 12 different communities throughout the province. Training sessions were held with members of agricultural advisory committees in three areas. Staff development sessions were conducted with the H.R.D.A. professional staff, H.R.D.A. home helpers, new staff of the Extension & Colleges Division, and professionals from a variety of disciplines at the Edson area development course.

Time expenditure has been grouped in the following four categories:

1. **Teaching and resourcing**—i.e. actual teaching assignments to develop improved understandings of and skill in leadership functions, communication, human relations, decision making and motivation—21%.

2. **Consultation**—i.e. discussion on a one to one basis and in small meetings with the same purpose as teaching—21%.

3. **Planning**—participation in planning meetings for specific leadership courses with representatives of the local sponsoring groups, designing courses and the preparation of course material—19%.

4. **Administration**—includes (a) evaluation of courses and training sessions (b) reporting, weekly, monthly, expense, etc. (c) correspondence (d) visual aid preparation (e) job analysis, management by commitment planning (f) budget preparation (g) professional improvement (h) conferences and other public relations functions—39%.

Leadership personnel endeavored to further the interdisciplinary approach through involvement in the planning and conduct of the Edson area development course, the University Extension leadership techniques course, and participation in district inter-agency committees. Moreover, the staff worked co-operatively with F.U. & C.D.A. in Unifarm training programs, Goldeye Lake Seminars and with leadership personnel of the Department of Youth in community leadership.

## COLLEGES BRANCH

The year 1970 witnessed continued progress at the colleges. Most technology programs were increased in length from 48 to 64 weeks with fashion and design merchandising technology being increased from a one year to a two year program. From the

overall standpoint for the year, enrolment held up well and showed increases in some programs. New programs included apprenticeship programs in agricultural mechanics at Olds and diesel mechanics at Fairview, a summer home economics short course at Vermilion and many continued education (adult) courses at all three colleges. Plans were laid for additional regular courses, adult courses and some home study courses to be offered in 1971. Applied research received new emphasis at the colleges and the use of facilities by outside organizations increased. Campus construction continued on a somewhat reduced basis and considerable landscaping was completed.

## **GRADUATION 1970**

For the 1969-'70 college year, graduation took place at all three colleges on June 26. Diplomas and certificates (in brackets) were presented and a comparison with 1969 is shown on page 78.

## **STAFF CHANGES**

In 1970 there were 12 staff changes compared with 18 in 1969. Of these, 3 resigned and 9 were replacements or filling new positions.

## **CHANGES IN TIME MODULE AND NOMENCLATURE**

Effective September 1970 the former session of 12 weeks duration was extended at Olds and Vermilion to 16 weeks and termed a semester. The College year consists of two full semesters and a spring and summer half-semester. Technician level programs require four semesters for graduation. To accommodate increased time, the fall semester commences the beginning of September and the winter semester starts at the beginning of January.

## **CONTINUING (ADULT) EDUCATION**

Continuing education programs have operated in a small way for several years at all three colleges. They were expanded in 1970 and at Olds a calendar was published. At all colleges these programs are carried out in co-operation with a number of other agencies.

An arrangement has been finalized with the Vocational Training Division of the Alberta Department of Education whereby the colleges will offer the business administration programs available through the division and courses originated at the colleges may be approved for certificates and/or diplomas issued jointly with the Vocational Training Division.

## **HOME STUDY COURSES**

The Vermilion College custodial housekeepers course which is partially on a home study basis, continued very successfully. A pesticide applicators course was transferred from the Department of Extension, University of Alberta to Vermilion.



The farm accounting course formerly offered by the same university department was in the process of being transferred to the Olds College at year end.

Consideration was being given to offering other courses on a home study basis.

### **NEW PROGRAMS**

**Livestock Feeds Technology**—a curriculum was completed and an advertisement presented to industry and to potential students.

### **REVISED PROGRAMS**

**Farriers Course** (Horse Shoeing)—a 12-week course designed to produce practicing farriers was established.

**Agricultural Equipment Technology**—Apprenticeship credits in Agricultural Mechanics was approved by the Apprenticeship Board.

**Agri-Business Technology**—was revised from technician to technologist status.

### **PROPOSED PROGRAMS**

Agricultural and Forestry Aviation Course  
10-month Floriculture Course  
Correspondence Course in Farm Accounting

### **CO-ORDINATION OF AGRICULTURAL EDUCATION AT THE COLLEGES AND STAFF DEVELOPMENT**

1. Staff Development:
  - a) Staff in-service training sessions were held at Olds, Vermilion and Fairview.
  - b) Several classroom observations and reports were completed.
  - c) A one-day new staff orientation session was held at Olds—17 attended.
2. The 18 advisory committees met at least once during the year. Some programs were revised, others were enlarged.
3. Advertisements appeared in several educational and farm magazines. College programs were advertised over "Call of the Land" radio programs and MEETA television. Nine career brochures were released. There was participation in nine career fairs. College programs were discussed with district office C.M.C. Calgary.
4. The Livestock Feeds Advisory Committee was established.
5. Canada Manpower and representatives of the Departments of Agriculture for Saskatchewan, Manitoba and Alberta met in Winnipeg to discuss agricultural manpower training in the prairie provinces.

## **BOARD OF AGRICULTURAL EDUCATION**

Major matters considered by the board in 1970 included:

1. Relationship of the colleges to the Colleges Commission. It appeared that the commission was concerned primarily with two aspects—program approval and long term policy for the colleges. A study was made of the Fairview College and recommendations were submitted to the government by the commission.
2. A brief was submitted to the Worth Commission on the Future of Agriculture Education in Alberta.
3. Guidelines were set up for establishing an advisory board at each college to be known as a Board of Regents.
4. College publicity.
5. Fee structure.
6. Continuing (Adult) Education.
7. Relationship between the Colleges Branch and the Extension Branch of the Department of Agriculture.
8. Articulation with other colleges and the faculty of Agriculture at the University of Alberta.
9. New programs.
10. Scope of concern of the board. It will be given further study but the idea that it should advise on all aspects of agricultural education in Alberta was accepted in principle.

## **INVOLVEMENT OF THE COLLEGES IN WIDER SPHERES**

The colleges are developing liaison with other post-secondary institutions both provincially and nationally.

Olds and Fairview have representation in the Association of Colleges Administration and Vermilion will soon have.

Faculty associations at the colleges are eligible for membership in the Alberta Association of College Faculties and will, no doubt, seek membership.

Student associations at the colleges have been invited to join the Alberta Association of Students and are considering it. Representatives have attended association meetings as observers.

During the year, administration, faculty and students participated in a number of conferences and workshops dealing with education.

Olds College has been a member of the Alberta Colleges Athletic Conference for four years which has provided an excellent avenue for communication and understanding. It is expected that Fairview and Vermilion will eventually be accepted into membership.



At the national level the colleges were represented by W. S. Baranyk, Principal of the Vermilion College, at the founding meeting of the Canadian Association of Community Colleges held in Ottawa in November. The three colleges were subsequently invited to join the new organization.

Sporadic attempts have been made over a number of years to achieve some co-ordination or at least sharing of ideas between agricultural college diploma programs across Canada. Mr. Hawker attended a meeting of representatives of diploma programs in Winnipeg.

There is interest in economizing to the extent of individual colleges offering specialty courses to which other colleges would direct students. Examples of existing specialization are horticultural technology, horse hoof care and farrier programs at Olds, production courses and the proposed floriculture course at Olds.

## FINANCIAL ASSISTANCE TO STUDENTS

Assistance in the form of loans, grants and prizes was available from the Queen Elizabeth Loan Fund and in some cases, loans from the Canada Student Loan Plan. The latter was used mainly by students from other provinces. Canada Manpower assistance was available to some students in 1970. In some cases the Alberta Vocational Training Division of the Alberta Department of Education gave assistance to students who could not qualify for Manpower assistance. Other sources of assistance included A.R.D.A., Indian Affairs, Workmen's Compensation and the Department of Social Development. Industry and the Surplus Wheat Board Monies Trust continued to provide bursaries, scholarships and prizes.

At each of the colleges an emergency loan fund is operated to provide small loans to meet emergency situations.

## COLLEGE FUNCTIONS OTHER THAN REGULAR PROGRAMS

The facilities at the colleges continue to be used by many organizations thereby rendering a service locally, regionally and provincially.

	No. of Events		Person/Days	
	1969	1970	1969	1970
Olds	145	169	19,817	*19,025
Vermilion	—	—	11,434	16,720
Fairview	107	121	5,197	8,545

The Department of Agriculture conference was held in Olds in 1969 but not in 1970. Not counting it, there was virtually no change in person/days.

## **CONSTRUCTION**

1. Administration and Academic Building—officially opened on March 14, occupied March 26.
2. Agricultural Mechanics Building—constructed, occupied in late September. A few deficiencies still to be corrected at year end. Opening planned for March 27, 1971.
3. Head House for Greenhouses—constructed by college maintenance staff, virtually completed at year end.
4. Roads, sidewalks and parking lots—put in by contract in the residence and Administration Building area.

## **VERMILION**

1. Hog studies Building—completed in March.
2. Metals Building—constructed. Virtually complete at end of year.
3. Gas Control Station—relocated and rebuilt.
4. Miscellaneous—Construction of parking lot, sidewalks, roads, extension of feedlot area, construction of underground power vault and extension of water supply to orchard, plots and lawns were carried out.

## **Fairview**

1. Mechanics Building No. 2—alterations and addition virtually completed with some deficiencies to be corrected.
2. Provincial Veterinary Laboratory—This facility is on college property but not built for or operated by the college.
3. Campus Irrigation—installed by contract.
4. Paving—carried out by contract.

## **APPRECIATION**

Many commercial firms, farm and other organizations as well as a large number of individuals gave excellent support to colleges. Those who have served on the Board of Agricultural Education and Advisory Committees have rendered a very special and valuable service. Those who have contributed scholarships, bursaries or prizes have been most helpful to students. To all who have helped in any way, the Department is sincerely grateful.

Assistance from other divisions of the department, other departments of the government, the Alberta Universities, the Colleges Commission and public colleges is also gratefully acknowledged.

The continuing co-operation between the three colleges and head office resulted in a great deal of progress in 1970. It is gratefully acknowledged.



	OLDS		VERMILION		FAIRVIEW		TOTAL	
	1969	1970	1969	1970	1969	1970	1969	1970
Agric. Technologies	36( 0)	68( 0)	24( 3)	32( 0)	8( 6)	19( 0)	68( 9)	119( 0)
Horticultural Tech.	*14( 0)	8( 0)	N/O	N/O	N/O	N/O	14( 0)	8( 0)
Soil and Water Tech.	19( 0)	8( 0)	N/O	N/O	N/O	N/O	19( 0)	8( 0)
Agric. Eqpt. Tech.	—	16( 0)	N/O	N/O	N/O	N/O	—	16( 0)
Business Education	1(26)	3(21)	4(17)	6(23)	3(13)	3(15)	8(56)	12(59)
Fashion and Design	0(21)	0(20)	N/O	N/O	N/O	N/O	0(21)	0(20)
Home Economics	N/O	N/O	10( 6)	0(10)	N/O	N/O	10( 6)	0(10)
Hog Production	N/O	N/O	0( 8)	N/O	N/O	N/O	0( 8)	0( 0)
Dairy Production	N/O	N/O	N/O	0( 8)	N/O	N/O	N/O	0( 8)
Native Women Homemakers	N/O	N/O	N/O	0(10)	N/O	N/O	0( 0)	0(10)
A.I. Technician	N/O	N/O	0(26)	0(39)	N/O	N/O	0(26)	0(39)
	70(41)	103(41)	38(60)	38(90)	11(19)	22(15)	119(132)	163(48)

\*Diploma subject to satisfactory completion of on-the-job training.

ENROLMENT AT COLLEGES — WINTER, SPRING AND FALL SESSIONS 1970

PROGRAM	OLDS			VERMILION			FAIRVIEW		
	WINTER	SPRING	FALL	WINTER	SPRING	FALL	WINTER	SPRING	FALL
AGRICULTURE (Dip.)	193	48	76	77	16	30	40	N/O	32
AGRICULTURAL EQUIPMENT	46	41	18	N/O	N/O	N/O	N/O	N/O	N/O
AGRICULTURAL MECHANICS	N/O	N/O	12	N/O	N/O	N/O	N/O	N/O	N/O
ARTIFICIAL INSEMINATION	N/O	N/O	N/O	N/O	14	N/O	N/O	N/O	N/O
CUSTODIAL HOUSEKEEPING	N/O	N/O	N/O	42	48	31	N/O	N/O	N/O
FASHION AND DESIGN	23	23	33	N/O	N/O	N/O	N/O	N/O	N/O
HOME ECONOMICS (Dip.)	N/O	N/O	N/O	15	9	15	N/O	N/O	N/O
HOME ECONOMICS (Cert.)	N/O	N/O	N/O	3	6	N/O	N/O	N/O	N/O
HORTICULTURE	28	29	26	N/O	N/O	N/O	N/O	N/O	N/O
SECRETARIAL ARTS	35	31	33	30	29	26	22	22	18
SOILS TECHNOLOGIES	N/O	N/O	19	N/O	N/O	N/O	N/O	N/O	N/O
LAND APPRAISAL	N/O	21	N/O	N/O	N/O	N/O	N/O	N/O	N/O
MOTOR MECHANICS	N/O	N/O	N/O	N/O	N/O	N/O	14	11	10
PESTICIDE APPLICATORS	N/O	75	N/O	N/O	N/O	N/O	N/O	N/O	N/O
ADULT PROGRAMS	N/O	N/O	N/O	N/O	N/O	N/O	24	N/O	N/O
AUTOMOTIVES 12	N/O	N/O	N/O	N/O	N/O	N/O	N/O	N/O	14
DIESEL MECHANICS	N/O	N/O	N/O	N/O	N/O	N/O	N/O	N/O	14
*HOME EC. SUMMER SHORT COURSE	N/O	N/O	N/O	N/O	29	N/O	N/O	N/O	N/O
HORSE HOOF CARE	30	N/O	N/O	N/O	10	N/O	N/O	N/O	N/O
PRE-TECH.	77	44	55	35	15	39	32	28	26
SURVEY AND DRAFTING	N/O	15	N/O	N/O	N/O	N/O	N/O	N/O	N/O
VOCATIONAL PREPARATION	N/O	N/O	N/O	N/O	N/O	N/O	N/O	N/O	10
SUB-TOTAL	432	327	272	202	176	141	132	61	124
1-P/D STUDENTS	100	151	63	61	121	60	46	81	40
TOTAL	532(3395)	478(358)	335(363)	263(207)	297(193)	201(187)	178(153)	142(119)	164(142)

1 — Person/Days divided by 60 teaching days in a session to give a student equivalent for other than regular programs.  
N/O — Not Offered.  
3 — 1969  
\* In July.



# REPORT OF THE PLANT INDUSTRY DIVISION

O. G. Bratvold, B.Sc., P.Ag., Director

## CROP PROTECTION & PEST CONTROL BRANCH

J. B. Gurba, B.Sc., P.Ag., Head

## FIELD CROPS BRANCH

J. D. Jantzie, B.Sc., P.Ag., Head

## HORTICULTURE BRANCH

P. D. McCalla, B.Sc., P.Ag., Head

## SOILS BRANCH

A. W. Goettel, B.Sc., M.Sc., P. Ag., Head

## WEED CONTROL & FIELD SERVICES BRANCH

W. Lobay, B.Sc., M.Sc., P.Ag., Head

The year 1970 was notable for two important factors. First, a turn-around in the grains market to a much improved sales volume in all grains and oilseeds (**except flax**) lead to a more optimistic outlook on the part of producers. Secondly, adjustment in crop acreage patterns set an all time record, as farmers jockeyed their plans in hopes of growing a product for which a market might materialize. The following table indicates the magnitude of these changes.

	1969	1970	1970 as % of 1969
	- 000 -		
Wheat	5,300	2,600	49
Barley	5,000	4,700	94
Oats	2,000	2,050	102
Flax	450	700	155
Rapeseed	816	1,600	196
Summerfallow	7,400	8,900	120

Favorable growing conditions were experienced throughout the province. In the Peace River area crops were described as being the best in twenty years. Good harvest weather enabled all but a very few in northeastern Alberta to complete their harvest. Crops were garnered with a minimum of damage from weather and other causes.

Rapeseed yields were somewhat disappointing relative to the appearance of the standing crop. Widespread infestation of root-rot was deemed the cause of the lowered yield. Yield and production figures for the major crops are shown in the following table with 1970 figure based on preliminary November, 1970 estimates.

	Yield/Acre		Production		Acreage	
	1969	1970	1969	1970	1969	1970
	bushels		- 000 bu. -		- 000 -	
Wheat	26.4	27.7	140,000	72,000	5,300	2,600
Oats	51.0	57.1	102,000	117,000	2,000	2,050
Barley	40.0	42.1	204,000	198,000	5,100	4,700
All Rye	19.4	22.1	3,500	4,750	180	215
Flaxseed	14.0	16.3	6,300	11,400	450	700
Mixed Grains	42.1	46.7	16,000	21,000	380	450
Rapeseed	14.3	18.1	11,700	29,000	816	1,600

### FARM IMPLEMENT ACT

Twenty-seven complaints were received under the Farm Implement Act in 1970. Most of these were resolved through mediation. The department was not aware of any case going to court action.

### CROP INSURANCE

Crop insurance was not offered in any new areas in 1970, but it was available to an estimated 85 to 90% of the grain producers of Alberta. Coverage was extended to include rapeseed in all eligible areas. Spring wheat, oats, barley (including mixed grain) and green peas for processing also were insurable.

Because of generally lower market values for grains, insured values were reduced to the following levels: wheat—\$1.25, oats—\$0.45, and barley—\$0.65, and this along with reduced acreage insured and fewer policyholders was reflected in lower total premiums and coverage for 1970. Rapeseed was again insured at \$1.50 per bushel.

Following is a summary of insurance operations since the inception of the program in Alberta in 1965:

	Insured Farmers	Acres Insured	Premium Paid by Farmers	Risk Carried	Indemnities Paid
1965	1,312	250,010	\$ 232,000	\$ 3,139,000	\$ 48,000
1966	4,408	984,784	\$ 802,000	\$13,460,000	\$ 315,000
1967	9,892	2,271,143	\$ 1,934,000	\$38,021,000	\$ 1,267,000
1968	15,661	3,904,894	\$ 3,769,000	\$63,718,000	\$ 5,496,000
1969	16,115	3,556,751	\$ 3,117,000	\$56,878,000	\$ 6,286,000
1970	12,791	2,304,075	\$ 2,087,923	\$31,801,000	\$ 1,600,000*

\*Preliminary

There were 71 processing pea policyholders covering 27,075 acres.



## **CROP PROTECTION AND PEST CONTROL BRANCH**

### **LIVESTOCK INSECTS**

#### **Cattle Grubs and Lice**

The use of systemic insecticides as a spray or pour-on treatment in the fall continued as an established practice for warble grub and louse control in beef cattle. Rotenone was used on milking dairy cattle. Promotion of large control areas on a municipal basis was continued. There are now 22 municipalities mostly in the central part of the province actively organized as warble control areas. The department provided financial assistance through the 1969 area warble control assistance policy. This policy was administered by the Livestock Branch while the technical assistance was provided by this branch.

A number of agricultural service boards provided sprayers for demonstration or service spraying and supervised treatment in community projects. With increased emphasis for the control of warble grubs through district programs, an estimated 1.8 million cattle were treated for grubs and lice during the year. Publication 653-6, "Warble Control" was up-dated and widely distributed along with publication 651, "Control of Livestock Insects". Publication 651-1, "Dairy Pesticides" was revised and distributed.

#### **Other Livestock Insect Pests**

The black fly project in the Athabasca area was continued in co-operation with the Lethbridge Research Station. The Athabasca River and its tributary streams were further studied to define breeding sites and biology of the major species.

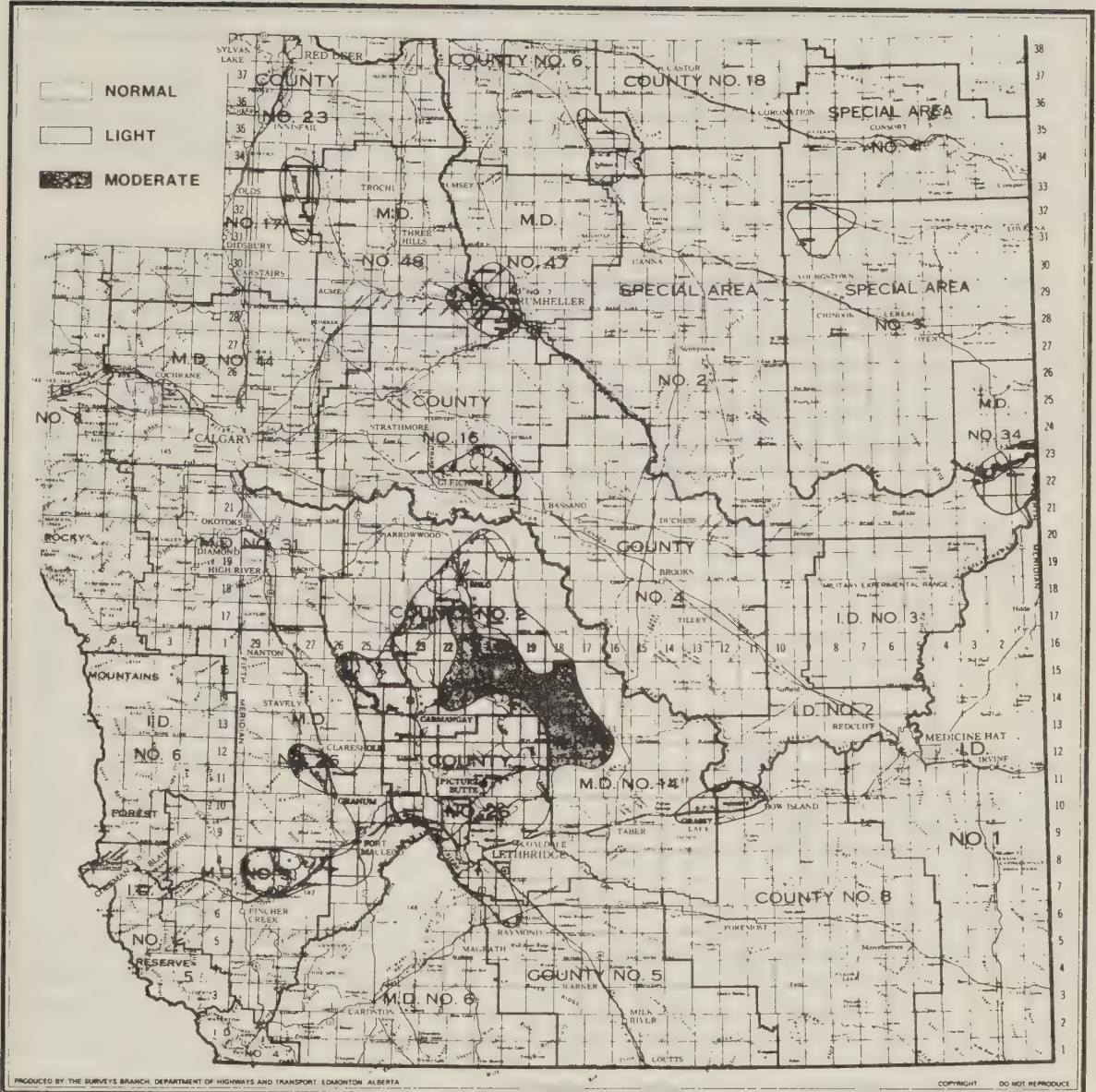
### **CROP INSECTS**

#### **Grasshoppers**

The grasshopper infestation was at the lowest level in southern Alberta in the last 20 years. Of the 1.08 million acres in the infested area, 1.03 million were rated as "light" and 57,000 acres were rated as "moderate". The dominant species was the two-striped grasshopper with the migratory and clear winged species more numerous in some cases.

The accompanying map shows the approximate areas and the degree of infestation. The egg hatch was mostly completed by June. There was little movement into crops until late summer and fall when some chemical control was necessary. Higher rates and repeated spraying with dimethoate insecticide were necessary to protect crops when the adults were flying.

# GRASSHOPPER FORECAST, 1971





Under the grasshopper policy the department distributed dimethoate insecticide at cost, less handling and shipping charges, through municipal and district offices. To prevent residue problems in meat and milk, local stocks of dieldrin were restricted to farms without livestock. Dimethoate was recommended for use on forage, pasture and livestock feed. Checks by provincial and municipal workers showed that farmers generally used these chemicals properly. Each purchaser of insecticide was required to sign a declaration that emphasized correct use and placed the responsibility for misuse on the applicator.

The grasshopper policy and forecast were supplied to municipal and district offices and other interested agencies. Because of the low infestation and limited area affected, no forecast map was printed. Information on control was distributed through publication 622-4-1, "Grasshopper Control in Alberta". Publication 622-9, "Control of Field Crop Insects—1970" was revised for updated information on grasshoppers and other major crop pests.

The following table compares the 1970 grasshopper situation with that of 1967-1969:

	1967	1968	1969	1970
Acres Land Infested	5,300,000	5,700,000	4,700,000	1,088,000
Acres Crop Menaced	900,000	800,000	700,000	200,000
Acres Crop Destroyed	400	500	200	90
Lb. Technical Dieldrin Used	700	—	—	—
Lb. Technical Dimethoate Used	2,064	3,404	1,408	288
Acres Sprayed—Dieldrin	11,200	—	—	—
Acres Sprayed—Dimethoate	11,000	18,000	7,400	1,482

### Cutworms

The pale western cutworm caused no economic damage for the fifth consecutive year. Only a few light infestations were reported from the southern area. The red-backed cutworm occurred in various parts of the parkland north of Calgary but damage was light in most areas. Endrin was used as an effective control measure. Arrangements were made through commercial firms for local supplies of endrin at reasonable cost.

The 1970 cutworm forecast, prepared by federal research stations, was mimeographed and supplied to municipal and district offices.

### Wireworms

Wireworms were found throughout the province. Damage to cereals increased over 1969 probably due to a decrease in use of seed treatment. Some damage continued to occur in potato and other root crops. The laboratory diagnosed three cases of wireworms or damage from submitted specimens of wheat and root crops. Municipal seed cleaning plants treated 327,730 bushels of seed with insecticide or about 2% of total seed cleaned (5% in 1969). Concern about environmental pollution was the main factor in reduced seed treatment.

## **Other Cereal Crop Insects**

Wheat stem sawfly damage was generally light to moderate with a noticeable increase in number of fields damaged. Resistant wheat varieties, Cypress or Rescue, were recommended for sawfly infested areas.

Aphids continued to infest some cereal crops. Dimethoate or malathion sprays were recommended for control of grain-infesting aphids.

## **Forage Insects**

The sweet clover weevil caused some damage in local areas in the central part of the province, however, only one case of economic damage was reported.

The pea aphid was found in large numbers in some alfalfa fields in southern Alberta. Spraying was done with dimethoate but on a much smaller acreage than in 1969.

Some heavy infestations of alfalfa weevil were reported in alfalfa fields in the Lethbridge area. The only control recommended was early cutting to reduce the population on succeeding crops.

## **Vegetable and Special Crop Insects**

Only one field of rape in the Three Hills area contained the alfalfa looper and the Bertha army worm. Research continued on new control insecticides at the Saskatoon Research Station for both insects. Flea beetles damaged rape and mustard seedlings in some areas. DDT spraying of seedling stands gave adequate control but malathion was only partially effective. Diamond back moth larvae were found in most rape fields in southern Alberta and control was necessary on about 3,000 acres.

Root maggots continued as a pest of cabbage, turnip, onion, carrot, and sugar beet crops in various parts of the province. Eight cases of root maggot injury were submitted to the laboratory. Colorado potato beetles were common and most potato fields were treated with insecticide.

## **Shelterbelt Insects**

Forest tent caterpillars continued to defoliate deciduous trees in various areas of west-central Alberta. Some persistent populations in other areas of the province remained constant. The pattern of defoliation throughout the province was one of patchiness.

Pear slugs damaged cotoneaster, plum and mountain ash, while the lilac leaf miner caused unsightly damage on ornamental lilacs in urban areas. Common insecticides and dimethoate used against these two pests gave adequate control.



Small spruce used in shelterbelts or as ornamental plants sustained moderate to severe defoliation by the yellow-headed spruce sawfly in agricultural areas of central Alberta and the Peace River district. Aphids were common on shade trees and on various ornamentals but were adequately controlled by using malathion or dimethoate. The popular bud gall mite continued to be a problem on hybrid poplar in southern Alberta. The gall mite on plum was found in the Medicine Hat area. Pruning of infected branches continued as the only method of control for both species of mite.

Carpenter ants and wood borers continued to be troublesome in trees in urban and resort areas. Spruce spider mites were reported in shelterbelts and ornamentals throughout Alberta. Identification and control were handled through the laboratory services.

The department's 50% grant for purchasing insecticide sprayers was used by the following municipalities in 1969-'70: I.D. #10, Counties of Beaver, Wetaskiwin, Barrhead, Athabasca, and Camrose, as well as the M.D. of Sturgeon to provide a total of 37 special sprayers in municipalities for service work.

### **Other Insect Pests**

Numerous problems occurred from stored grain pests such as grain mites, rusty and saw-toothed grain beetles. In total, 38 cases of damage by this group of insects were handled through the laboratory. Information was supplied to farmers on stored grain problems. Deodorized malathion was recommended for treating stored grain. Seventy-one cases of household insects plus a number of cases of insects of public health importance, mainly flies, head and body lice, were dealt with in the laboratory as well as in the supervisor's office. This represents a doubling of inquiries with the main reason being the restricted use of DDT. Sod webworm and earthworms infested some lawns in most urban areas. Chlordane was recommended as a control measure.

The strawberry root weevil continued to invade homes but did not cause any economic damage. The grey garden slug inquiries were more numerous than in recent years. Metaldehyde was recommended but did not give satisfactory control, therefore other methods of control were tested. Numerous minor insect pests of crops and gardens were identified in the laboratory as well as in the supervisor's office and control information was supplied as requested.

## **CROP DISEASES**

### **Diseases on Potatoes**

#### **1. Bacterial Ringrot**

A joint provincial-municipal control program was operated again and continued in five co-operating districts: Counties of Newell, Lethbridge, Forty Mile, M.D. of Taber and I.D.'s 1 and 2. The control program in the Edmonton and Calgary area was carried out by branch staff.

The annual field surveys were carried out in co-operation with federal agencies and co-operating municipalities. Co-operating municipalities handled most of the control measures on infected farms in their area. Grants were paid to municipalities on the basis of acreage under permit and number of growers. Diagnostic work on bacterial ringrot was handled by the Crop Clinic at Edmonton and a special technician at Lethbridge. The accompanying table shows the crop acreage and survey results with 1966-'69 data for comparison purposes.

Pest Area					% Infected	
		No. Farms Inspected	No. Farms Infected	Acreage Inspected	Acreage Infected	Farms      Acreage
Taber		59	27	11,466	3,687	45.7      32.1
Newell		53	10	5,189	888	18.8      17.1
Forty Mile		16	6	2,422	387	37.5      15.9
Lethbridge		29	2	2,107	6	6.8      0.3
I.D. 1 & 2		3	0	151	0	0      0
Perimeter		24	3	206	7	12.5      3.4
Calgary		17	1	315	7	5.9      2.2
Edmonton		58	5	4,750	656	8.6      13.8
Total	1970	259	54	26,605	5,638	20.8      21.1
	1969	240	24	21,256	1,815	10.0      8.5
	1968	255	33	18,622	2,030	12.9      10.9
	1967	242	39	15,810	2,633	16.1      16.7
	1966	307	91	19,007	4,315	29.6      22.7

After five years of steady improvement the bacterial ringrot situation deteriorated. A definite increase in infected farms and acreage occurred especially in the districts of Taber, Forty Mile and Newell. A total of 259 potato farms and 26,605 acres were inspected with 20.8% farms and 21.1% acreage infected. However, the per cent of infected plants found was very low in practically all fields so there was little actual loss from the disease in storage or marketing.

The main reasons for ringrot increase were: a) favorable environment, b) imported seed, c) large acreage increase using commercial seed. Joint action was planned with federal and municipal agencies for future improvement.

## 2. Other Potato Diseases

Blackleg again was considered the most economically important potato disease in Alberta. Rhizoctonia was the most widely occurring potato disease. Some severe early blight infestation occurred in northern areas. Several reports of late blight in the Edmonton area indicated the presence of that disease. Snow and freezing weather in late September caused considerable frost injury prior to digging and consequent rot in stored potatoes.



### **3. Seed Potato Improvement Program**

A new seed potato improvement program for the province of Alberta was initiated in the summer of 1970. The purpose of the program is to produce high yielding, high quality clones of commercially desirable seed potato varieties.

The objectives of the program are:

- 1) to obtain initial stocks of disease-tested tubers,
- 2) to increase initial disease-tested stocks, maintaining virus freedom,
- 3) to supply disease-tested stocks to selected growers for production of elite and foundation seed.

An advisory committee was established, chaired by the supervisor of plant pathology, with the Crop Clinic's entomologist as secretary. The committee provided liaison and co-ordination of all agencies involved in potato seed production, including the department, the university, the federal government and grower organizations.

### **Other Crop Diseases**

Reports from offices of district agriculturists and other agencies revealed the following diseases of economic importance: common root rot on cereals, alfalfa and clovers; scald and net blotch on barley; smut in winter wheat; stem eyespot on fescues; root rot on beans; blights on peas; snow molds on lawns and early spring diseases on perennial forage crops.

Surveys for rape diseases indicated that a severe disease problem, very similar to blackleg of Crucifers (**Phoma lingam**), occurred in northern Alberta in areas where above average rainfall occurred in the growing season. Estimated loss of yield in some fields surveyed was up to 70 per cent.

### **Seed Treatment Trials**

Eighteen non-mercuric seed treatment fungicides were tested at two locations. Several non-mercuric liquid fungicides to control smuts in cereals showed potential as replacements for liquid mercurials. None of the chemicals tested controlled root rots on cereals, flax and rape.

Municipal seed cleaning plants treated with fungicides: 2,905,800 bushels of seed compared to 4,975,800 bushels in 1969 and 6,385,400 bushels in 1968.

## **ANIMAL PESTS**

### **Norway Rat Control**

Alberta was basically kept free of rats for the nineteenth consecutive year, as a result of the continuation of the extensive control program on the east border.

The increase in invading rats begun during 1969 continued. There were 106 total infestations compared to 90 in 1969. All infestations were exterminated by the end of the year.

The following table shows the rat situation on December 31, 1970, with the 1968-'69 data for comparison purposes:

	Year	Vermilion Rv. County #24	Wainwright M.D. #61	Provost M.D. #52	Special Areas No. 2 & 3	Acadia M.D. #34	I.D.'s 1 & 2	I.D. #18	Totals
Premises checked	1968	537	288	680	586	185	646	323	3,245
	1969	438	360	551	478	85	576	223	2,711
	1970	299	296	542	475	92	576	214	2,494
No. Infestations	1968	15	7	9	14	3	3	0	51
	1969	29	14	17	28	0	2	0	90
	1970	39	16	29	14	0	4	4	106
No. Infestations remaining Dec. 31	1968	0	0	0	0	0	0	0	0
	1969	0	0	2	4	0	0	0	6
	1970	0	0	0	0	0	0	0	0

Generally good co-operation was experienced from residents, pest control officers, municipalities and other agencies. Rats were successfully held along the 380 mile front from Montana to Cold Lake, despite increased numbers crossing the east border. Farther within the province, some rats invaded through transport facilities and shipping. Several suspected cases were investigated and all live rats found were exterminated before having a chance to multiply. Some 250 pest control officers appointed by rural and urban municipalities assisted in handling local reports.

The department continued the 50 per cent grant toward salaries and expenses of officers in six east border districts. Two provincial officers worked closely with municipal authorities, handled problem cases and control in northern improvement districts.

The following quantities of anti-coagulant bait were used: Warfarin Ready Mixed—23,822 pounds and Water Bait—3,710 packages. Based on the amounts of poison used and average rat populations, an estimated 33,900 rats were killed. This represented a saving of approximately \$1,000.00 in potential rat damage for each \$1.00 spent on the rat control program.

Displays and demonstrations were used at a variety of public functions, meetings and through the public media. Newly appointed officers were trained and supplied with kits. A joint meeting of Alberta and Saskatchewan authorities on rat control was held at Lloydminster in March to co-ordinate programs. The newly appointed supervisor of animal pest control assisted in the co-ordination of all animal pest control programs.



## **Pocket Gophers**

Pocket gopher field trials have been carried out in past years using both artificial burrow building machines and the hand placement method. Both methods gave about equal average control under suitable conditions. The 0.1% gophacide bait averaged 79.1% control while the 0.4% strychnine averaged 78.3% control for 1967-'68-'69. Since gophacide was as effective but safer than strychnine, the branch encouraged development of commercial supplies in Canada. Several firms are expected to provide supplies in 1971. Special arrangements were made to obtain an interim supply of 0.1% gophacide from the U.S. This will be made available for use by municipalities in 1971. About half of the rural municipalities had mechanical bait applicators available for farmer use in large area infestations. A new publication No. 686, "Control of Pocket Gophers" was prepared and distributed.

## **Richardson's Ground Squirrels**

In the light of severe damage caused to cattle ranges in the Hanna area a summer project was conducted in an attempt to evaluate and test new and current methods for ground squirrel (prairie gopher) control. A summer technician was hired to conduct research of an "applied" nature and evaluate results. Tests indicated that protective portable baiting boxes can be used economically on limited acreage provided they are used at the proper time of year. Additional research is necessary to determine the practicality of using antifertility agents on larger scale control operations. Much basic and practical information was acquired and it was planned to continue field research for the development of potential control methods.

## **Other Field Rodents**

Bush rabbits increased in most areas damaging shelterbelts and ornamental trees. Field mice were numerous especially in north central areas where grain swaths remained over winter. Rodenticides were tested at the Oliver Tree Nursery where mouse damage was severe on seedling conifers.

Printed information was supplied on control measures for rabbits and mice damaging ornamentals and shelterbelts. Information was also supplied on the control of ground squirrels, skunks, snakes and bats. Skunk control was encouraged along the east border to reduce the risk of rabies from Saskatchewan. As positive rabies cases were discovered in late fall, the control of skunks and other vectors of rabies received increased attention.

## **Magpies**

Several municipalities conducted winter programs which greatly reduced magpie numbers. Agricultural service boards reported that 377 live traps and poison sets were used and an estimated 8,090 magpies destroyed. A circular wire-mesh live trap was built and tested with considerable success for controlling magpies. A publication on this technique was prepared for printing.

**Nuisance Birds**

Printed information was updated and supplied on the control of nuisance birds such as sparrows, blackbirds, pigeons, gulls, etc. Various scaring devices, repellents and control techniques were field tested to develop practical control measures.

**Coyote Control**

The approved poisons, strychnine, cyanide guns and compound 1080, were supplied to land owners in 87 approved municipalities which cover the agricultural region, as shown in the following tables:

	Coyote Getters	Cyanide Cartridges	Scent (2 oz. jars)	Strychnine (Pellets)	Estimated Coyotes Killed
1968	186	735	462	34,000	14,650
1969	73	542	278	15,000	6,565
1970	288	1,040	283	21,500	8,344

The use of all poisons increased somewhat over 1969. Power toboggans were in common use for hunting coyotes. The threat of rabies in late fall increased interest in coyote control. In the fringe areas of settlement, coyote and other predator control was continued in co-operation with the Department of Lands and Forests.

Branch staff met in the spring and fall with officials of the U.S. Bureau of Fish and Wildlife, Montana Region, to exchange information on predator and rodent control techniques and programs. As a result, the use of spring foot snares to remove nuisance bears from bee yards was successfully initiated in Alberta.

Compound 1080 baits were used in sparsely settled areas to assist farmers where other control measures were not sufficient. Under the co-operative program, the following districts used 1080 baits during the winter season:

DISTRICTS	No. of Baits Set
Cardston, M.D. #6	30
Foothills, M.D. #31	10
Lac Ste. Anne, County #28	11
Newell, County #4	5
Parkland, County #31	1
Pincher Creek, M.D. #9	8
Taber, M.D. #14	10
Warner, County #5	4
Wheatland, County #16	10
Willow Creek, M.D. #26	3
I.D. No's 1 & 2	5
I.D. No. 8	3
I.D. No.'s 10 & 11	13
I.D. No. 16	1
Total	114



A large number of districts shared baits and co-ordinated control on a regional basis. Summary of 1080 program for the last five years:

	1966	1967	1968	1969	1970
Number of 1080 Sets	242	256	247	108	114
Number of Districts Using	28	40	38	14	14
Number of Districts Approved	80	80	80	80	80

The 1080 baits were prepared by two branch officers, then distributed and disposed of by municipal and provincial fieldmen. All municipal officers were checked out for training requirements. New municipal fieldmen and assistants were trained in poison control techniques and issued with Form B training certificates.

### LABORATORY SERVICE (CROP CLINIC)

The primary responsibility of the Crop Clinic was to provide a diagnostic and identification service to the Plant Industry Division and district offices. Specially trained personnel, equipment and techniques, not available in extension offices, were employed.

Diseases of cereals, flax, nursery stocks and stored vegetables received special attention.

Following is a summary of the numbers and categories of specimens received for diagnosis, identification and recommendations. Problems arising from most specimens were answered immediately. A number, however, required lengthy examination, culturing and observation. A few involved investigations which are still proceeding. Total specimens numbered 2,141 compared to 2,106 in 1969.

	Plant				
	Identification	Insects	Diseases	Misc.	Total
Cereal & Forage	29	20	118	—	167
Special Crops	10	7	228	—	245
Ornamentals	22	—	458	—	480
Shelterbelts	—	199	104	—	303
Vegetables	—	39	107	—	146
Fruits	19	16	193	—	228
Stored Products	—	51	—	—	51
Household	—	48	—	—	48
Public Health	9	24	—	—	33
Veterinary	30	8	—	—	38
Weeds	130	—	—	—	130
Native Plants	103	—	—	—	103
Exotics	—	80	—	—	80
Miscellaneous	45	40	4	—	89
Total 1970	397	532	1,212	—	2,141
Total 1969	428	508	1,158	12	2,106
Total 1968	364	425	1,133	22	1,944

## **Entomology Section**

A new publication 672, "Guide to Control of Houseflies in Alberta" was prepared and distributed. Publication 625, "Control of Garden Pests" was up-dated for 1970 recommendations.

## **Special Investigations**

### **1. Mosquitoes**

The A.I.C.P. subcommittee on mosquito control publications reviewed the 1969 guide and made recommendations for 1970. Baytex was dropped from the list of recommendations and Dursban M. added. Publications 673-2, "A Guide for the Control of Mosquitoes in Alberta Municipalities, Parks, Camps and Resorts—1970", was prepared and distributed. A special article "Mosquitoes and the Camper" was prepared for "Camper News".

The cities of Edmonton, Camrose and Wetaskiwin requested direct technical assistance for mosquito control including biology of pest species, location of breeding sites, species identification and design of control programs. These requests were handled in co-operation with the Department of Entomology, University of Alberta. Close liaison was maintained with these agencies throughout the summer. Tests were carried out on the use of Abate tossits and Vapona was tested as a possible insecticide for use as a thermal aerosol. Results were submitted to the Pesticide Research Report.

A request was made by the North West Territory government for assistance in mosquito control. A one-week survey of Fort Smith, Yellowknife and Hay River revealed a serious mosquito problem. Information was compiled and a report sent to the Assistant Commissioner, North West Territories as well as individual reports to each town.

Inquiries on mosquitoes and their control were received from Ontario, Manitoba, Saskatchewan, British Columbia and North West Territories.

The Alberta Mosquito Control Committee was formed in 1970. Its function is to co-ordinate and provide advice on mosquito control activities in the province. This committee contains representatives from the Departments of Agriculture and Health, University of Alberta, city representation, and consultants as required.

Fifteen permits for mosquito control were issued by the Alberta Department of Health to agencies and commercial applicators conducting mosquito control programs. Special problems in the southern part of the province were handled in co-operation with the Lethbridge Research Station.



## **2. Blackflies**

A work-planning meeting was held to outline operations for blackfly research in the Athabasca area for 1970. Participating agencies were the Lethbridge Research Station, University of Alberta, Fish and Wildlife and the department.

## **3. Alfalfa Looper**

This insect was discovered in very small numbers in a rape field in the Three Hills area. Specimens were reared in the laboratory but most were killed by a virus. Consequently no work could be done to select an effective insecticide. Polyhedra containing a nuclear polyhedrosis virus responsible for insect disease were isolated in November. These may have a place as an alternative to chemical control.

## **4. Seed Potato Improvement Program**

A survey was undertaken at Peers to determine the presence of the green peach aphid, population numbers and time of occurrence. This aphid carries the following viruses detrimental to potatoes: leaf roll, spindle tuber, aucuba, P.V.A. and P.V.X. The aphids were identified by Dr. A. Harper of the Lethbridge Research Station. No green peach aphids were determined.

## **Special Investigations**

### **1. Seed Treatment**

Several nonmercurial seed treatment compounds were tested for efficacy in controlling covered smut of oats. Complete control of covered smut was obtained with nonmercurial fungicides including systemics. Certain combinations of two nonmercurials were particularly promising.

### **2. Carrot Storage Rot**

Plant and soil samples were cultured and examined for the purpose of isolating the causal organism(s) responsible for serious field and storage losses of commercial carrots grown on irrigated land.

### **3. Fireblight**

Considerable success has been achieved in developing a laboratory diagnostic technique to identify current year fireblight infections. The bacterium responsible for this disease was isolated for the first time in this province on raspberry and on apricot. New infections occurred mainly on apple, crabapple and mountain ash trees and fruits, during the most severe outbreak of the disease since 1966.

#### **4. Potato Scab**

Elemental sulfur, when applied to certain soils, produced effects designed to control the soil-borne organism responsible for common scab of potato. Beneficial effects persisted for a two to three year period following a single sulfur application. These results could lead to suitable chemical control recommendations applicable on a commercial and garden basis.

#### **5. Black Stem of Wild Fescues**

The causal fungus has been isolated from wild rough fescue growing in several locations in southern Alberta. Attempts are being made to determine if this fungus is the same as that causing a similar disease of cultivated creeping red fescue and if wild fescue may serve as a source of inoculum for the latter and other cultivated fescues.

#### **6. Crown Rot of Elders and Shoot Blight of Lilacs**

Additional isolations of the causal fungus **Phytophthora citricola** have been made and host range studies continued. Lilacs appear to be damaged in the crown area as well as in the tips of young shoots. Various vegetables also have shown susceptibility to the pathogen. Cultural methods helpful in distinguishing the causal fungus from related species have been developed.

#### **7. Browning or Stem-break of Flax**

Seed infestation studies have shown farmers' seed from widely separated parts of Alberta to be carrying the causal fungus. Field observations have also indicated that extensive damage is occurring on farms, especially in the moister parts of the province. The use of resistant varieties and crop rotation are also necessary and are being given attention in our investigations.

#### **8. Fungal Cankers of Woody Plants**

Canker diseases of woody ornamentals and fruits have been found to be very prevalent and destructive in Alberta, e.g. on mountain ash, dogwood, cotoneaster, poplar, apple and crab-apple. The causal organisms of these diseases have not been determined with certainty nor have satisfactory control measures been devised. Attempts to remedy this situation are under way and considerable progress has been made especially in the diagnostic field.

### **Extension and Communication**

Demands for in-depth investigation of plant and insect problems resulted in an increased amount of time by each of the professional laboratory staff in perusal of scientific literature available at the clinic or in the university research library. By this means the staff were better able to cope with incoming specimens and with special requests for scientific information needed to solve local or regional problems.



## PESTICIDE RESIDUES

About 1,800 samples were analyzed for pesticide residues by the Dairy and Food Laboratory. From the analyses there were 24 samples of commercial food products found to contain organo-chlorine insecticides over the tolerances allowed by the Food and Drug Directorate. Through grower co-operation and regulatory action, products above the actionable level were not permitted to enter commercial markets. The branch co-operated with the Dairy and Food Laboratory, the Food Residue Committee, the Veterinary Services Division, the Animal Industry Division and other federal and provincial agencies concerned. All problem cases were investigated to determine the source of residues and to advise the producer or processor on corrective action to eliminate pesticide residues.

Other agencies or specialists were consulted on the more difficult problems for techniques or follow-up investigations. Major problems in residues involved: (1) three milking cows fed contaminated feed, (2) one poultry producer with 6,000 hens of which 1,400 were destroyed because eggs contained a wire-worm insecticide, (3) root crops and forage grown on soil previously treated with persistent insecticides, (4) game birds contaminated with mercury and insecticide seed treatment compounds, and (5) fish contaminated with DDT previously used for large area mosquito control.

Milk, other dairy products, eggs and meat products were randomly sampled to ensure that the public received safe milk and food. Problem situations have been defined over the years and, with good management shown by producers and processors, few residue problems occurred during 1970.

The branch co-operated with Food and Drug in handling residue problems in food and with Canada Agriculture on residue problems in commercial feeds. Most actions were preventive to ensure that only safe food and feed entered market channels.

Mercury residue found in pheasants and Hungarian partridge was the most serious pesticide residue problem the branch had to contend with. Over 500 game birds were collected during pre-seeding, seeding, postseeding and fall periods. Because of limited laboratory facilities, pooled samples of about 10 birds each were analyzed for mercury residues. It was found that mercury levels were low in early spring then increased during June-July and dropped off toward fall. The data showed there was no potential hazard to human health. The hunting season on pheasants and Hungarian partridge, which was closed in 1969, opened normally in the fall of 1970. Investigation and analysis will continue into 1971.

Warnings were issued on how residues develop and how they may be prevented. Close co-operation between federal and provincial agencies, as well as random monitoring of the main food products kept problems to a minimum and the safety of the consuming public was maintained.

## **COMMITTEES AND PESTICIDE CONTROL**

The branch head served as secretary of the Pest Control Advisory Committee which held its 14th annual meeting in November. The P.C.A.C. served as a liaison group for representatives from provincial, university and federal agencies in entomology, plant pathology, health, wildlife and industry. It resolved various problems including conflicting interests in pest control programs and reported to the Alberta Agricultural Co-ordinating Committee.

The branch head also served as secretary of the Alberta Interdepartmental Committee on Pesticides which held its regular meetings in May and December. The A.I.C.P. resolved a variety of problems concerning pesticide residues, training and licensing of commercial pesticide applicators, safety programs, restriction, regulation and disposal of pesticides, etc. Users and handlers of mercury treated seed co-operated well by restricted and improved use and disposal. Mercury levels decreased from 1968-'69 levels so that safe tolerances for human health were met.

Two extensive reports were prepared by A.I.C.P. members and others for the 1970 Legislature, other agencies and the public.

### **1) Mercury Residues in Wildlife in Alberta**

### **2) Summary Statement on Pesticides and Mercury in Alberta**

Branch staff served on the P.C.A.C. and A.I.C.P. and on the various subcommittees which handled special problems as publications, nuisance birds, mosquito control, pesticide training and licensing programs, review of pesticide label claims, etc. A three-man subcommittee developed two regulations under the Agriculture Chemicals Act which came into force on April 1st.

The branch assumed responsibility for administration and operation of the Agricultural Chemicals Act. Under this new legislation and new control programs, 253 commercial pesticide applicators were licensed in seven categories. Provincial and municipal jurisdictions appointed 117 inspectors for administration and enforcement of proper pesticide use, application and disposal. A five-man Agricultural Chemicals Advisory Committee, chaired by the branch head, was established to advise the minister and implement action programs.

As provincial representative the branch head served on the Canada Committee on Pesticide Use in Agriculture (CCPUA). The Western Committee on Crop Pesticides and the Western Committee on Livestock Pesticides dealt with regional problems and developed recommendations for the control of crop and livestock pests. The guides developed by the WCCP and the WCLP were used as bases for up-dating provincial publications, restricting persistent pesticides, and were distributed as reference material for district and municipal offices.



The branch head served on the Alberta Advisory Committee on pollution control, including three working subcommittees. All staff were increasingly involved in various committee work, investigations, public meetings and enquiries to cope with the much increased public concern about pollution and proper use of agricultural chemicals.

## OTHER ACTIVITIES

Branch staff co-operated with other agencies in arranging and operating the third pesticide training course attended by about 200 pesticide applicators at the Olds College. Several other training courses were organized or assisted with. Liaison was maintained with university, municipal, provincial, federal and industry agencies in pest control and pesticide use.

Scientific papers\* were published and papers were presented at major meetings\*\* as follows:

- \*1) Ecology of Mosquito Larvae in the Winnipeg Area 1967, Part I. 1970.  
Dixon, R. D. and R. A. Brust. Man. Ent.
- 2) Ecology of Mosquito Larvae in the Winnipeg Area 1968, Part II. 1970.  
Dixon, R. D. and R. A. Brust. Man. Ent.
- 3) Field Testing of Insecticides Used in Mosquito Control and a Description of the Bioassay Technique Used in Temporary Pools. 1970.  
Dixon, R. D. and R. A. Brust. J. Econ. Ent.
- 4) D.D.T. Residues in Soil in the Winnipeg Area. 1970.  
Brust, R. A. and R. D. Dixon. Man. Ent.
- 5) Predation of Mosquito Larvae by Minnows. 1970.  
Dixon, R. D. and R. A. Brust, Man. Ent.
- 6) Effectiveness of Abate 4E and 15% Methoxychlor for the Control of Blackfly Larvae in Small Streams. 1970.  
Dixon, R. D., L. K. Peterson and L. G. Pledger. Pest. Res. Rpt.
- 7) Effect of Temperature on the Rupturing of Abate Tossits. 1970.  
Dixon, R. D. Pest, Res. Rpt.
- 8) Effectiveness of Vapona in a Thermal Fog. 1970.  
Dixon, R. D. and L. G. Pledger. Pest. Res. Rpt.
- 9) Seed treatment field tests conducted at Edmonton in 1970 with non-mercurials for the control of covered smut of oats. 1970.  
Henry, A. W. Pest. Res. Rpt.
- 10) Seed infestation of flax in Alberta with the fungus causing Browning or Stem-break. 1970.  
Henry, A. W. and C. E. Ellis. (In Press).

- \*\*1) "Legislation on Pesticide Applicator's Licensing." L. K. Peterson. Annual Meeting, Alberta Cooperative Seed Processors. January, 1970. Edmonton.
- 2) "Proposal for Reserving Areas as Ecological Reserves." H. Vaartnou. Annual Meeting, International Biological Program — Conservation of Terrestrial Ecosystem, Alberta Consulting Panel. February, 1970. Edmonton.
- 3) "Use and Misuse of Pesticides". L. K. Peterson. Annual Meeting, Alberta Horticultural Association. March, 1970. Olds.
- 4) "Dairy Pesticides." L. K. Peterson. U. of A. Food Science Course. March, 1970. Edmonton.
- 5) "Agricultural Chemicals Legislation." J. B. Gurba. Annual Pesticides Training Course. April, 1970. Olds.
- 6) "Pesticides and Pollution." J. B. Gurba. Annual Agricultural Seminar, F.U.A.-C.D.A. June, 1970. Gold-Eye Camp.
- 7) "Management of Pesticides by Provincial Regulatory Means." J. B. Gurba. Annual Meeting, Agricultural Pesticides Society. July, 1970. Ottawa.
- 8) "Mercury Situation in Alberta." J. B. Gurba. Annual Meeting, Canadian Agricultural Chemicals Association. September, 1970. Jasper.
- 9) "Ecology of Mosquitoes in the Winnipeg Area." R. D. Dixon. Annual Meeting, Northwest Mosquito and Vector Control Association. October, 1970. Victoria.
- 10) "Fungicides and Pollution." J. B. Gurba. Agricultural Club Pollution Teach-In, U. of A. November, 1970. Edmonton.
- 11) "Management of Pesticides and Pollution Control." J. B. Gurba. Annual Meeting, Alberta Advisory Committee on Pollution Control. November, 1970. Edmonton.
- 12) "Mercury Seed Treatment and its Effect on Farm Animals and Wildlife." J. B. Gurba. Annual Agricultural Seminar. December, 1970. Great Falls, Montana.
- 13) "Agricultural Chemicals Legislation." J. B. Gurba. Annual Agricultural Seminar. December, 1970. Great Falls, Montana.

## **FIELD CROPS BRANCH**

### **GENERAL**

A large stock-pile of grain, unstable prices and a grave concern by those in the industry ushered in 1970. Markets and prices for most field crops improved as the year progressed, although the farm cash picture remained critical.



Farm crop adjustment and diversification were necessary to bring grain stock-piles to more manageable levels. The federal program Lower Inventory for Tomorrow, and the Alberta Crop Adjustment Assistance program assisted producers in making some crop adjustment.

Aggressive sales and promotion policies, increased demand for feed grains and special crops have somewhat relieved the pressure so apparent at the beginning of the year.

### **Staff Changes**

A new regional plant industry supervisor position was established at Red Deer and filled by R. W. Nelson who was replaced at Fairview by G. W. Miller.

L. Gareau — formerly Regional Resource Co-ordinator, Human Resources Development Authority — was appointed Supervisor, Forage Crops.

W. H. Toews — was appointed to the new position of regional plant industry supervisor in the southwest region.

### **REGIONAL PLANT INDUSTRY SUPERVISORS**

Plant industry supervisors were located in five regions of the province. Two vacancies were filled in 1970. Administration of Plant Industry Division programs and resource support to extension programs on a regional basis were the primary purpose of regionalization.

Programs and activities varied between regions, because of climatic conditions, cropping plans and the needs of the local people.

The division's southern region supervisor had many activities in the irrigated crop area. The establishment of a Corn Committee, a co-operative group to facilitate the testing of corn hybrids and to promote the production of grain corn, was a major contribution to the problem of farm crop diversification. Weed control in irrigated crops was a major problem affecting specialty crop production.

The southwest region concentrated on division activities in the field of marketing and alternative crop production.

The Red Deer and Peace River regions were concerned with weed control, soils and problems of fertility.

Eastern Alberta's regional activities were planned around forage production and crop management.

All regional staff were closely involved in farm meetings organized by Unifarm for the purpose of securing feedback on the Task Force on Agriculture Report.

IMPROVEMENT PROJECTS

Cereals and Oilseeds Crops

General

Crop improvement continued to be a major activity of the branch. The need for information on alternative crops was met through co-operation between research and farm innovation.

Cereal and Oilseed Pedigree Seed Production

The following table summarizes the acres and estimated yield of cereals and oilseeds inspected for pedigree status.

	1969			1970*		
	Acres	Yield (bu.)	Yield/Acre	Acres	Yield (bu.)	Yield/Acre
Hard Red						
Spring Wheat	31,770	1,777,568	37.0	21,777	790,022	36.2
Soft White						
Spring Wheat	410	18,400	44.8	437	14,720	33.6
Durum Wheat	2,323	88,810	38.2	10,552	361,745	34.2
Soft Red						
Spring Wheat	1,119	56,355	50.3	—	—	—
Winter Wheat	20,352	908,020	44.6	20,558	804,930	39.1
Oats	26,924	1,829,712	67.9	19,022	1,368,006	71.9
Barley	43,202	2,532,974	58.6	33,702	1,887,872	56.0
Spring Rye	29	1,245	42.9	231	4,830	20.9
Fall Rye	693	25,900	37.3	4,363	130,035	29.8
Triticale	—	—	—	28	1,100	39.2
Flax	8,846	146,751	16.5	17,977	346,167	19.2
Oriental Mustard	41	68,200 lb.	1,660 lb.	40	42,000 lb.	1,050 lb.
Field Peas	—	—	—	47	1,517	32.2
Rapeseed	2,191	40,000 lb.	1,825 lb.	5,524	4,340,765 lb.	784 lb.

\*Preliminary estimate

Cereal and Oilseed Breeder Seed Distribution

The Stock Seed Distribution Committee allocated the following varieties and amounts of Breeder seed. A total of 2,844 lb. was distributed.

Wheat	lb.	Oats	lb.	Barley	lb.	Rapeseed	lb.	Flax	lb.
Garnet	20	Fraser	60	Betzes	48	Echo	45	Redwood	65 90
Hercules	120	Garry	240	Bonanza	864	Polar	76		
Neepawa	200	Grizzly	120	Centennial	24	Turret	5		
Park	90	Harmon	300	Conquest	24				
Thatcher	20	Rodney	60	Galt	72				
		Sioux	30	Gateway	63 216				
				Olli	48				
				Paragon	72				
<hr/>									
Total	450		810		1,368		126		90



## Alberta Cereal and Oilseed Advisory Committee

The committee reviewed research data and recommended the following changes for the publication "Varieties of Cereals and Oilseeds for Alberta 1971".

1. Bonanza barley added to the list of described malting barleys.
2. Turret rapeseed added to the list of Argentine type rapeseeds.
3. Minor adjustments made in comparative yield values of Echo and Target rapeseed and the barley varieties in Area 4.

The committee further supported:

1. The application for license of a high yielding early oat by Lacombe Research Station.
2. The application for license of a winter wheat superior to Kharkov 22MC.
3. A request for continued studies in disease control of rapeseed, barley, wheat and flax.
4. A request for a compilation of information on all special crops that might be alternatives to presently grown cereals and oilseeds.

The committee expressed concern over Canada Department of Agriculture's proposed plans to affect a complete production change-over from high erucic acid varieties of rapeseed to zero erucic acid varieties by 1972. The main cause for concern was the lack of adequate information on the agronomic characteristics of the new varieties and of the performance of low erucic acid rapeseed oil in the manufacture of margarine and shortening.

## Municipal Cooperative Seed Cleaning Plants

No new plants were built in 1970. However, the Blackie plant was replaced by a new plant of all-steel construction.

Following is a summary of grain cleaned and treated.

	1968-69*	1969-70*
Total Commercial Seed Cleaned	16,628,088	15,513,975
Total Pedigree Seed Cleaned	311,959	594,906
Total Seed Cleaned	16,940,047	16,108,881
Total Dockage Cleaned	1,608,857	3,126,303
Total Bushels Cleaned	18,548,904	19,235,184
Total Bushels Treated (Fungicide)	4,975,788	2,905,796
Total Bushels Treated (Insecticide)	765,258	327,730
Average Number of Bushels Cleaned Per Plant	285,367	287,092

\*Year End June 30th.

## Special Crops

Although no accurate figures were available, it was estimated that in excess of 75,000 acres produced special crops in 1970. These included buckwheat, safflower, sunflower, canary seed, grain corn, peas, beans, mustard, etc. These crops were grown under contract.

## FORAGE CROPS

### General

The promotion of forage crops continued to be an important phase of the field crops program, for encouraging long-term proper land use and for increasing the production potential of forage crops for an expanding livestock industry.

As indicated by the following production table, 1970 was a most favorable season for the production of hay, but somewhat below normal for seed production.

Production of Hay Crops in Alberta in 1969 and 1970

	Acreage	Yield/Acre	Production
1969	2,900,000	1.37 tons	4,000,000 tons
1970	3,400,000	1.82 tons	6,200,000 tons

Estimates of Seed Production

	1965-69 Average	1970
	— thousand pounds —	
Alfalfa	1,173	600
Alsike	7,700	6,500
Sweet Clover	4,402	4,000
Birdsfoot Trefoil	5	14
Red Clover	5,600	5,650
Brome	3,217	4,500
Crested Wheatgrass	607	1,800
Meadow Fescue	113	75
Creeping Red Fescue	13,053	14,500
Timothy	1,756	1,500



## FORAGE SEED PRODUCTION

### A. Pedigree Seed

The table below summarizes the reported acreage and production of grass and legume crops inspected for registration and certification in 1970.

	Acreage	Estimated Yield lb.
Brome	3,436	784,125
Red Fescue	970	345,700
Orchard Grass	210	56,015
Reed Canary Grass	75	8,500
Perennial Rye Grass	583	138,000
Russian Wild Rye Grass	387	61,850
Timothy	2,416	479,125
Crested Wheat Grass	4,238	1,253,825
Pubescent Wheat Grass	282	118,000
Streambank Wheat Grass	25	5,000
Tall Wheat Grass	147	29,800
Alfalfa	1,221	37,950
Alsike	280	25,000
Red Clover	452	16,000
Birdsfoot Trefoil	190	—
Sainfoin	8	—
Total	14,920	3,358,890

### B. Basic Seed Distribution

Under the Canadian forage seed project, Breeder and Foundation seed of the Canadian forage varieties was distributed by the branch as follows:

#### 1. Breeder seed for contract production —

Aurora alsike	—	100 lb.
Beaver alfalfa	—	20 lb.
Boreal creeping red fescue	—	50 lb.
Carlton bromegrass	—	60 lb.
Greenleaf pubescent wheatgrass	—	32 lb.
Melrose sainfoin	—	200 lb.
Magna bromegrass	—	30 lb.
Norlea perennial ryegrass	—	150 lb.
Revenue slender wheatgrass	—	50 lb.
Roamer alfalfa	—	40 lb.
Sawki Russian wild ryegrass	—	25 lb.

## 2. Foundation seed —

Beaver alfalfa	—	200 lb.
Rambler alfalfa	—	30 lb.
Roamer alfalfa	—	150 lb.
Boreal fescue	—	650 lb.
Champ timothy	—	600 lb.
Climax timothy	—	250 lb.
Carlton brome grass	—	1,000 lb.
Magna brome grass	—	1,857 lb.
Greenleaf pubescent wheatgrass	—	570 lb.
Orbit tall wheatgrass	—	250 lb.
Norlea perennial ryegrass	—	200 lb.
Chief intermediate wheatgrass	—	150 lb.
Sawki Russian wild ryegrass	—	750 lb.
Summit crested wheatgrass	—	300 lb.
Kay orchard grass	—	200 lb.

## Alberta Crop Adjustment Assistance Program

While not connected with the federal wheat inventory reduction program, the above was designed to compliment it and assist financially in the transition to greater diversification. The program was operative for 1970 only.

The program replaced the former soil and crop management project operated under the agricultural service board agreement. Although municipalities were asked to handle applications and some administrative details of the program, they were not required to provide any of the assistance funds.

The program provided assistance in the amount of 50% of the purchase price of forage seed up to a maximum of \$600.00 grant to any one farmer. To be eligible farmers were to establish the forage stand in 1970 and for the purpose of hay or pasture use only.

The program was readily accepted by Alberta farmers. Approximately 18,000 applications were received for the purchase of a total of 8,874,303 lb. of forage seed.

The amount of assistance paid out was \$2,165,000.00.



### **Demonstration Plots**

Small lots of birdsfoot trefoil and meadow foxtail were allocated upon request by district agriculturists to farmers for the purpose of demonstration.

<b>District</b>	<b>Amount</b>
Evansburg	50 lb.
Sangudo	25 lb.
Vermilion	25 lb.
Peace River	10 lb.
Cardston	5 lb.

### **The Alberta Forage Advisory Committee**

The committee met in October, reviewed the current work in forage crops and planned for future activities on a provincial basis.

The committee was advised that the Lethbridge Research Station had applied for the licensing of a new variety of alfalfa, designated as Syn L C-B, and of the Lethbridge strain of Cicer milkvetch. Support of the committee was given to these applications.

The committee agreed to prepare and distribute a forage crop varietal leaflet along the lines of the publication 110-32, "Varieties of Cereals & Oilseeds in Alberta".

#### **Seed Dealers Act**

Seventeen seed dealers were licensed under the act.

#### **Seed Control Areas Act**

Pure seed control areas were established in rapeseed producing districts. The following were declared established:

Fort Vermilion District

I.D. No. 22

County of Thorhild No. 7

### **Agricultural Relief Advances Act**

Assistance in the form of loans for the purchase of seed, fuel was provided in Improvement Districts 16, 17, 18, 19, 20, 21, 22 and 23. Total advances amounted to \$105,158.89.

#### **Royal Winter Fair**

The branch continued its policy of assisting exhibitors at the Royal Winter Fair Toronto.

Alberta winners of top awards were as follows:

### **World Championships**

Wheat (Chinook)	Harold E. Hansen	Vulcan
Oats (Victory)	T. Rhatigan	Edmonton
Seed Potatoes (Nett. Gem)	Fujimoto Bros.	Rainier
Table Stock Potatoes (Netted Gem)	Fujimoto Bros.	Rainier

### **Championship**

Winter Wheat (Winalta)	Mrs. Lloyd Mercer	Lethbridge
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### **Reserve Championships**

Flax (Raja)	Mrs. Marilyn Lebsack	Vulcan
Bromegrass (Carlton)	J. Scriba	Grande Prairie
Wheat (Chinook)	L. W. Barany	Taber
Alfalfa (Beaver)	S. Petersen	Tilley
Wheat (Spring)	G. L. Biebrick	Carbon

### **First Prizes**

Pedigreed Barley	Rene Bremont	Falher
Pedigreed Hard Red Spring Wheat	L. W. Barany	Taber
Pedigreed Alfalfa Seed	S. Petersen	Tilley
Pedigreed Rapseseed	J. Flessatti	Bowden
Creeping Red Fescue	J. Hallstone	Wembly
Grass Seed	Kenneth C. Long	Cardston
Oats Sheaf	Carl Brown	Brooks
Barley - 2-rowed	Lien Farms Ltd.	Warner
4-H Wheat	Don Anderson	Kathryn

## **APICULTURE**

### **General**

A large crop of honey was produced in 1970. It was estimated at 20 million pounds, an increase of 5-10% above 1969. As a result of two large crops in consecutive years, the price and demand for honey was depressed and large quantities of honey were held by producers.

J. W. Edmunds, long-time supervisor of apiculture, left the branch, October 31, to take up full-time marketing of honey products.



## Package Bees and Queens

The quality of package bees and queens received from the United States in the spring of 1970 was very high and the incidence of nosema infection on imported queens was nil. The trend to wintering colonies of bees in the interior of British Columbia during the previous two years levelled off. Approximately 2,500 colonies were moved to British Columbia in the fall of 1970.

Interest was reawakened in the wintering of colonies in Alberta. Approximately 2,500 were successfully wintered.

## Disease Inspections

Because of staff changes, inspections declined in 1970.

	1969	1970
No. of Apiaries Inspected	1,412	632
No. of Colonies Inspected	12,450	4,825
No. of Apiaries with American Foulbrood	95	94
No. of Apiaries with European Foulbrood	2	—

## Statistics

	1969	1970*
No. of Colonies	120,000	120,000
No. of Beekeepers	1,500	1,500
Average Yield Per Colony	160 lb.	175 lb.
Total Honey Production (000)	19,200	21,000
Total Value of Honey (Dollars)	2,688,000	2,750,000
Total Value of Honey & Wax (Dollars)	2,889,000	2,839,000
Price of Honey Per Pound	14¢	13¢
Price of Wax Per Pound	70¢	60¢

\*Estimated. Only 37% of known beekeepers register annually.

# HORTICULTURE BRANCH

## GENERAL

The branch head was the department's representative on the Provincial planning Board and a member of the Edmonton Regional Planning Commission. He also served as the agricultural representative on a special committee studying Lake Wabamun. In September he became a member of the department's Agricultural Marketing Council. A total of 48 working days were spent on the above activities.

The cities of Calgary and Red Deer co-operated with the department in providing horticulture extension services.

The branch head was the secretary of the Horticultural Advisory Committee and the Potato Tuber Indexing Committee. He was a member of the executive of the Alberta Horticultural Association and is the editor of that organization's quarterly publication the "Alberta Horticulturist". He was also a member of the Potato Improvement Committee and the Tree Advisory Committee.

## TREE DISTRIBUTION AND SHELTERBELT EXTENSION

A total of 3,985 Alberta farmers received trees for shelterbelts. Table I is a summary showing the numbers and types of trees used.

**TABLE I**

<b>Types of Trees Used</b>	<b>No. Distributed</b>
Tall Deciduous Trees	391,000
Small Deciduous Trees	162,000
Hedge Plants	1,052,000
Coniferous Trees	254,000
Total	1,859,000

An additional 750 bundles each containing 36 fruit bearing shrubs were distributed. The breakdown by type of planting for the above listed trees is in Table II.

**TABLE II**

<b>Type of Planting</b>	<b>No. Distributed</b>
Farmstead Shelterbelts	822,000 trees
Field Shelterbelts	348,000 trees
Roadside Hedges	314,000 trees
Replacements	134,000 trees
Acreage Plantings	75,000 trees
Miscellaneous Plantings	166,000 trees



Shipping of the trees from the Provincial Tree Nursery started on April 20th and was completed May 11th.

All the district agriculturists of the seven regions attended a one-day training course in shelterbelt extension at the nursery. The press, radio and television were used to advise on shelterbelt establishment and maintenance. Several field days were held throughout the province demonstrating shelterbelt renovation and tree pruning.

An incentive program was introduced whereby farmers could qualify to receive \$6.00 per acre in cases where native tree cover was maintained as a shelterbelt. Under the agricultural service board 1969-'70 tree planting assistance program, a total amount of \$16,119.99 was paid to municipalities as a grant for shelterbelt establishment.

**PROVINCIAL TREE NURSERY, OLIVER**

Table III is an inventory of trees at the nursery.

**TABLE III**

Trees being grown for shelterbelts .....	4,845,797
Trees in storage for 1971 shipping .....	1,551,361
Forestry 1-0 conventional stock .....	5,191,000
Forestry 2-0 conventional stock .....	3,590,000
Forestry 3-0 conventional stock .....	1,137,000
Forestry 3-2 conventional stock .....	151,000
Forestry container stock .....	248,600
Large stock .....	6,329
Total	16,716,087

**Forestry Program**

In addition to the nearly two million trees grown and distributed for farm use, Table IV lists the number of trees shipped to the Department of Lands and Forests for reforestation.

**TABLE IV**

<b>Forest</b>	<b>No. Shipped</b>
Athabasca	56,050
Bow River	226,150
Crowsnest	121,750
Edson	82,300
Footner Lake	81,550
Grande Prairie	109,800
Lac La Biche	91,700
Peace River	96,100
Rocky-Clearwater	106,150
Slave Lake	164,300
Whitecourt	74,250
Others	3,750
<b>Total</b>	<b>1,213,850</b>

In addition to the 1,213,850 conventional seedlings, Table V shows the number of container grown stock shipped or held in storage for spring shipment.

**TABLE V**

<b>Forest</b>	<b>No. Shipped</b>	<b>Stored Over Winter</b>
Athabasca	39,600	—
Bow River	88,350	—
Crowsnest	105,600	—
Edson	43,400	—
Footner Lake	—	46,680
Grande Prairie	87,400	—
Lac La Biche	—	50,000
Peace River	62,759	43,134
Rocky-Clearwater	240,000	56,370
Slave Lake	2,400	25,850
Whitecourt	2,800	21,567
<b>Total</b>	<b>672,309</b>	<b>243,600</b>

A total of 2,849 pounds of coniferous seed was shipped to Alberta Forest Service districts, private companies and the Canadian Forest Service. A total of 11,194 bushels of spruce cones, 31,168 bushels of pine cones and 1,000 pounds of winged seed have been received for processing. Total seed extracted to date is 6,726 pounds. A total of 19,667 pounds of seed, valued at \$294,995.00, are in controlled temperature storage.



Table VI shows the number of seedlings produced from seed beds.

**TABLE VI**

Forest	No. of Seedlings
Athabasca	60,000
Bow River	345,000
Crowsnest	234,000
Edson	204,000
Footner Lake	357,000
Grande Prairie	236,000
Lac La Biche	192,000
Peace River	279,000
Rocky-Clearwater	126,000
Slave Lake	920,000
Whitecourt	270,000
Others	1,968,000
Total	5,191,000

### **Agriculture**

About 577,000 cuttings of willow and poplar were made during the winter of 1969-'70. To date this year, 336,000 cuttings have been made and placed in storage.

Table VII shows the number of trees transplanted.

**TABLE VII**

Variety	No. of Trees
Colorado Spruce	190,000
White Spruce	83,770
Scotch Pine	15,800
Lodgepole Pine	16,930
Siberian Larch	12,000
Hawthorn	8,200

Stooling beds were established at the poultry plant to produce cutting whips of Acute Leaf and Laurel Leaf Willow.

One thousand yards of peat moss was hauled from Bon Accord to the nursery. This will be used as packing material during next year's shipping.

A small arboretum was established for the benefit of visitors to the nursery. It consists of varieties of trees currently being shipped to farmers.

Maple, Green Ash, Lilac, Larch, Hawthorn and Mayday seed were picked, cleaned and placed in storage for future use.

## **Capital Improvements**

A new irrigation dam was constructed and is complete except for final landscaping.

The new packing shed was completed in October and is now ready for use in the spring 1971.

A new sewer line connecting the nursery to the City of Edmonton is now complete and started operating December 20.

An eight inch waterline was constructed looping all existing waterlines at the nursery to Henwood.

All the existing greenhouses at the nursery were remodelled and a new 62' x 32' quonset-type house was constructed. This house is to be covered with fulcron.

A new high pressure gas line was constructed from Highway #15 to the nursery. Enough gas is now available for all future expansion requirements.

All roof drains on the extraction plant have been rerouted and connected to the new sewer line.

Construction has started on the new office. All the old office buildings and the machine shop were removed by the end of the year. Temporary office facilities were located in a trailer which was borrowed from the Water Resources Division.

The dairy barn on the old Oliver farm was remodelled. At that time it was used as a temporary packing shed. It is now used for the storage of cones and nursery supplies.

A new machinery yard was constructed for parking equipment. It is located in what used to be field 9 on the nursery.

One half mile of fence was constructed on the south side of field 29.

Fort Saskatchewan inmates were used to clean out brush and trees from the new reservoir located behind the recently completed dam.

Dust removal equipment and a new auger were installed in the extraction plant. This has resulted in improved working conditions in this building.

Ten thousand seedbed covers were constructed for the nursery by the Department of Public Works.

The Occupational Therapy Department of Alberta Hospital Edmonton made 4,000 steel marking pins, 200 seedling shipping bags and cut and printed 4,000 aluminum tags for use at the nursery.



## Staff

The Nursery staff consisted of nine permanent employees and up to 55 seasonal employees needed especially at shipping time. An additional 102 men and women worked weeding and doing odd jobs, the majority of which were patients from the Alberta Hospital Edmonton and Belmont Rehabilitation Center, and inmates from the Fort Saskatchewan Goal.

## Meetings and Visitors

Eighteen groups consisting of 710 people visited the nursery. In addition, several hundred made individual visits for specific information. A meeting of the Inland Empire Council of the United States held at the nursery in September was attended by 69 foresters from the United States and Western Canada.

The Superintendent and Mr. Ward attended a meeting of the Intermountain Nurseryman's Association held in the United States. Several of the employees took courses in order to broaden and up-grade their qualifications.

## SPECIAL CROPS

TABLE VIII

### Acreage of Special Crops in Alberta

*Fresh Vegetables	1969	1970
Cabbage	180	180
Carrots	395	530
Corn	560	560
Cucumbers	105	90
Onions	180	250
Parsnips	40	80
Potatoes	22,000	30,000
Rutabaga	210	295
<b>Processing Vegetables</b>	<b>1969</b>	<b>1970</b>
Beans	—	535
Carrots	—	100
Corn	—	1,990
Peas	—	3,546
Red Beets	—	50

\*These acreages are as compiled by the Alberta Fresh Vegetable Commission and the special crops supervisor, and do not necessarily reflect D.B.S. figures.

## Cabbage

Attempts to increase production of early and mid-season cabbage met with some success. Continuity of supply is an important factor in cabbage production. A large supply of late cabbage, mainly the evergreen type, was put into storage.

## **Carrots**

Acreage continued to increase in 1970 with many new growers involved. Yields and quality were generally good. Some problems were incurred with weed control. A team of research workers were active in solving storage problems.

## **Corn**

The months of August and September saw a corn glut in Alberta. Hot weather tended to mature corn very rapidly, regardless of variety or date of seeding. Production was generally above average, but some growers were unable to sell all of their corn even at very low prices.

## **Cucumbers**

An oversupply of cucumbers existed in all production areas, largely caused by the backyard to ½ acre plots which so many people planted and the fact that it was a good year for cucumber production. Cucumbers are possibly the only crop which can have its marketing scheme so upset by these small undeterminable acreages.

## **Onions**

Just at the time when many new growers were getting into the onion production business, one of the worst years on record for onion growing was experienced. Over 400 acres were seeded in the spring but much was lost to poor germination and heavy weed growth. Many onions which survived the summer were unacceptable for storage because of a September frost.

## **Parsnips**

Although this is a small acreage crop, it is increasing in importance in Alberta as market demand steadily increases.

## **Potatoes**

Potato production took a major upswing in 1970 as increased processing facilities became available. Yields in Alberta were generally higher than was initially expected; however, considerable yield reduction was experienced in some areas as the result of hail.

Fujimoto Brothers again dominated prizes at the Toronto Royal Winter Fair.

## **Rutabaga**

Frost damaged a portion of the large rutabaga crop before it could be stored this fall. This crop still lacks adequate mechanization, making much of the production rather inefficient.



## **Processing Crops**

Contracted acreage of peas was down considerably from previous years because of a large surplus of frozen product. Approximately 300 acres of peas were lost in hail storms. Losses from bacterial blight in green and wax beans still ranks as a major production problem. A good year for sweet corn was experienced in production, with quality of finished product also reported to be good. No cucumbers for processing were grown this year.

## **Greenhouse Crops**

Cucumbers have become the major commodity grown under glass. Production has been extended into August allowing growers in the Medicine Hat area to overlap field and greenhouse production which gives a marketing season from April through September. Tomatoes are an important fall crop; other commodities have been tried, but none very successfully.

## **Major Events**

Bicks of Canada suspended operations at their Medicine Hat pickle processing plant, leaving Alberta without cucumber processing facilities.

Four new vegetable processing plants were built or expanded in 1970 including Vauxhall Foods Ltd., Newell Vegetable Co-op Ltd., Old Dutch Foods Ltd. and Alta-Fresh Produce Ltd. This indicates the growth of the horticultural industry in the province.

The Calgary Exhibition and Stampede is planning a major horticultural promotion for 1971.

## **Other Activities**

The special crops supervisor continued to carry the responsibility for conducting and guiding vegetable storage and handling research at the Alberta Horticultural Research Center, Brooks. Considerable progress was made in modifying methods of storage and handling of carrots and cabbage.

The three-year tobacco production trial which was concluded indicated the feasibility of a commercial tobacco industry for sometime in the future.

A commercial sweet corn research project supported by growers of the Alberta Vegetable Marketing Board was continued at Taber. This is a research project conducted under the Alberta Agricultural Research Trust Fund.

The special crops supervisor has taken an active part in improving marketing techniques and outlook for the vegetable industry.

## ALBERTA HORTICULTURAL RESEARCH CENTER, BROOKS

### Introduction

The name of the Provincial Horticultural Station, Brooks, has been changed by Ministerial Order and will now be known as the "Alberta Horticultural Research Center".

Considerable emphasis on a multidisciplinary approach to problem solving during the last year has augmented the Research Center's capabilities. Programs such as vegetable storage—post harvest physiology depend critically on the availability of plant pathologists, plant physiologists and biochemists to assist horticultural staff with respect to specific problems.

Publication of the Research Center's results has been a major difficulty during the past years; this year, a bi-weekly newsletter was initiated, and a three-year summary of research prepared.

### Capital Improvements and Maintenance

A five-year program for the physical plant has been developed in consultation with the Department of Public Works.

An addition to the main building was completed which includes the Superintendent's office, and a conference-library room. One of the suites above the offices was vacated and utilized for office space. Partition of the technicians' offices has increased the usefulness of that space.

Cooler #6 (**refrigerated storage**) was converted to three filacell cooled controlled atmosphere rooms (**total storage capacity of about 25 tons**). These units are presently filled with cabbage and carrots in bulk and carrots in special pallets. Cooler #7 was upgraded with the installation of a larger compressor.

A temporary quonset style greenhouse was erected for transplant production. It will be utilized for storage on the off-season. The tobacco kiln and a building to house a refrigerated cooler were completed. (**The cooler was purchased through the Alberta Commercial Corporation at a considerable saving.**)

Partial levelling of plot 4 will bring this area into production in 1972. Levelling will continue in 1971 at the isolation station, and at the main plots, and will commence in 1971 on the new land purchased this year.

Main service roads were gravelled, and the parking area repaved. A sewer line connecting the Research Center and the Town of Brooks' lagoon was installed. The Department of Highways erected new Research Center direction signs.

Irrigation facilities were improved with the addition of two sprinkler units, as well as more gated pipe. A small sprinkler system for the main gate was installed. Completion of the tiling project on the irrigation ditch running to the ornamentals area was accomplished.



New flag poles were set up, one on each side of "Little Rundle", the rock carrying the Alberta Horticultural Association recognition plaque. Preparation for mercury vapour lights on the main thoroughfare was begun.

General maintenance and upgrading of facilities was carried out by the Department of Public Works. An office ventilation system was installed, the farm manager's office completed in addition to routine repair and maintenance work. As the building superintendent is now also responsible for Provincial buildings in Brooks, storage and work area became limited.

### Research Center Projects

Three programs, vegetables, environmental horticulture, and pomology were in progress under the supervision of professional personnel. The projects involved breeding for new varieties, varietal testing, cultural and herbicide trials, and storage studies. While most of the trials were conducted at the main Research Center, projects were also underway at the Strathmore substation, at six locations in the Brooks area, at two locations near Taber, one at Coaldale and two at Medicine Hat. Some thirty test orchards were under development across the province.

### Vegetables

Six hundred and forty-four varieties of fifty kinds of vegetables were tested in the vegetable varietal trials in Brooks and 132 varieties of 18 kinds at the Strathmore substation. The three Agricultural and Vocational Colleges were also involved in this program. In addition to the basic horticultural characteristics, yield and disease resistance, observations were taken on earliness, suitability for commercial production and processing quality. Storage quality was an important factor, hence those vegetables which could be stored were under test in the appropriate type of storage.

Fifty-four thousand plants were grown in the tomato breeding plot. From the 897 seedlings, 908 reselections were made. Two new varieties "Brookpack" and "Brookpact" were released for the fresh trade in southern Alberta and/or for the Prairies. Two other Brooks seedlings (**#2300, and #2301**) were submitted to 40 research institutions in Canada and in the United States for final evaluation.

One pepper variety "Castle" was also released. About 8,400 plants from 210 selections of "Castle" pepper were grown and 176 reselections were made.

The potato breeding program continues to be a major involvement. Twelve varieties and seedlings were used for controlled crossing in the greenhouse. About 13,000 first year seedlings were grown in isolation of which 11,000 were the products

of the Brooks program and 2,000 from Aberdeen, Idaho. In addition to the first year seedlings, 253 older Brooks seedlings were grown in the breeding plot; some of these were part of the Prairie potato trials.

The Research Center continued to co-operate with the Prairie Regional Potato Committee. Thirteen varieties were grown in a five replicated trial and twelve varieties in a four replicated early tuberizing trial. Tests on these trials include observations of horticultural characteristics, culinary and quality tests such as boiling, baking, chipping, french frying, specific gravity, reducing sugars and starch content. The early chipping, french frying and main crop advanced trials were made up of three replicates of varieties and seedling, designed to produce specific information regarding one particular characteristic of the material under test. One hundred and sixty seedlings were tested in the single row adaptation trial. The Research Center received three extra tubers of this material so as to have an early harvest in the middle of August to determine the early harvest potential of this material.

Tomatoes, eggplants and peppers grown above underground heating cables in combination with above ground protection were harvestable up to three weeks earlier as well as having a heavier yield.

A continuous cabbage marketing project, including production and storage work gave very promising results for the fresh vegetable industry. The study indicated the importance of temperature, humidity and ventilation in maintaining cabbage quality over an extended period of storage. Storage tests of cabbages, carrots, and parsnips have been conducted in pressure cooled (Filacell) controlled temperature storage in pallet boxes for several years. In 1970, this project was expanded to include bulk storage trials of carrots and cabbage.

Forty-four varieties of corn were grown in a four replicated trial for the evaluation of silage and grain potential. This project was co-ordinated with the Research Station in Lethbridge and was under the auspices of the Alberta Corn Committee. Eight sorghum x sudan grass hybrids and two sorghum hybrids were also tested adjacent to the corn trial.

### **Tuber Indexing of Foundation Potato Seed**

The service of indexing foundation potatoes was continued by the Plant Industry Division; the Alberta Horticultural Research Center, Brooks; and the Plant Protection Division of the Canada Department of Agriculture. Nineteen growers took advantage of the program and submitted 1,021 tubers for testing. Five hundred and twenty-seven tubers (51%) were rejected primarily because of mosaic virus disease. Tubers of the following varieties, "Netted Gem", "Warba", "Norland", and "Viking" were submitted by growers, members of the Elite Seed Potato Growers' Association.



## Environmental Horticulture

The general trials of herbaceous and woody ornamentals are gradually being expanded and improved. Chrysanthemums, fall asters, iris, lilies, peonies and spring flowering bulbs form the main sector of the herbaceous perennials collection. Iris and lily have proven of particular worth in the prairie garden. The annuals provide excellent display as well as valuable information for the bedding plant producer. The gladioli collection was maintained and in the past year was relocated with results not as outstanding as in the past. The rose garden was well established, but requires modification in the future to allow grass paths without the grass encroaching on the plants. A rather unfortunate situation occurred in the **Syringa (lilac)** collection in the ornamental block with the loss of many plants due to what appears to be a fungal infection. Other woody plants exhibited good growth and continue to show promise as plant material for the prairies.

Poplar and willow whips are no longer grown at Brooks to supplement the Provincial Tree Nursery, Oliver, production. Stock plantings of poplar and willow were established at the Alberta Horticultural Research Center to provide Oliver with the bulk of hardwood cutting materials for their production. Shelterbelt species were grown from seed. Seventy-two 4-H bundles were shipped in the spring of 1970. About 72,100 shelterbelt trees and 1,000 conservation bundles consisting of 36 plants of nine kinds per bundle were shipped to Oliver for distribution in the spring of 1971. A total of 4,536 pounds of fruit were picked to obtain seed for future production and 855.4 pounds of tree seed were sown in the spring and fall of 1970.

"Lifelite" plastic and Fulcron reinforced plastic were used to cover two softwood propagation frames. Duplicate trials testing four ornamental species, and using four growth hormones in nine different growing media were conducted. Time of cutting trials on various species were also carried out.

A poplar timber trial (consisting of 50 species, clones, etc.) to evaluate poplar for shelterbelt and ornamental use was established at the Alberta Horticultural Research Center, Millicent Game Reserve, and Tillebrook Trans-Canada Park.

A nutrition study on greenhouse tomatoes including tissue and soil analysis trials was initiated in the spring of 1970 with the co-operation of the Alberta Soil and Feed Testing Laboratory in Edmonton. This program was expanded in the fall of 1970 with the University of Alberta becoming involved; chrysanthemums and tomatoes were added as test crops. The purpose of this trial is to "obtain data on the mineral nutrient status of a natural crop of greenhouse chrysanthemums and greenhouse tomatoes throughout the growth cycle of the crop. This data is to be correlated with soil test and crop production data as a means of compiling information useful in the interpretation of soil and

tissue tests diagnosing nutrient deficiencies.” Nine chrysanthemum crops were sampled in addition to three tomato crops. Excellent co-operation was received from the greenhouse industry.

Indications are that fibreglass and glass are the most acceptable permanent greenhouse glazing materials. The rigid polyvinyl chloride has deteriorated and will be removed in 1971. For spring production and temporary covers, polyethylene films are of definite value. “Solar Sun Clear” which prohibits formation of condensation and dripping to some extent was sprayed on the inner surface of the 4 mil poly greenhouse with good results. Twenty-four varieties were grown in the spring tomato crop and averaged eleven pounds per plant. Four varieties “Super M”, “Tuckcross 520”, “Michiana No. 138”, and “Eureka 274” with “Rapids” on trial are under test in the fall crop. Other trials with peppers, green onions, radish and lettuce were conducted in an effort to find an alternate fall crop. Lettuce shows some potential but further trials will have to be carried out.

## **Pomology and Herbicides**

Pomology is involved with tree and small fruit breeding, cultural studies, pilot plant projects, and grafted fruit tree distribution under the farm, demonstration and test orchard program. During 1970, 174 bundles totalling 600 apples, 75 pears and 1,000 plums were distributed to Alberta farmers. Strawberry plant multiplication was initiated to establish two pick-your-own commercial operators. Cultural studies in strawberries point to clear plastic as an excellent mulch. Chemical weed control trials indicated that specific chemicals were required to control specific weeds in strawberries. Raspberry growth retardants promise to help reduce winter injury to canes. Some seedling rhubarb selections show resistance to redleaf disease. Excellent selections of bush fruit such as Mongolian and Nanking Cherries have been made for fruit flavor, size and plant hardiness.

A three-year study on potato vine killing indicated promising, currently nonhazardous chemicals such as diquat (**reglone**) and paraquat (**gramoxone**) as safe replacements for sodium arsenite.

Weed control studies in special crops such as onions, potatoes and carrots were conducted and results appear promising. Reducing labour costs required for weeding in special crops is essential for commercial operations.

## **Education**

Some 2,000 casual visitors, and 1,000 visitors on tours and field days were given an opportunity to become acquainted with the segments of the Research Center in which they were interested.



Professional and technical staff assisted with lectures, short courses and field days on an estimated 90 occasions.

Approximately 20% of staff time was directed to providing extension services either as resource staff for other sectors of the department, or directly to producers.

## **Appreciation**

The Research Center staff wish to acknowledge the assistance and co-operation of the Center's Advisory Committee, the Canada Department of Agriculture Research Station, Lethbridge, the Department of Public Works, the Alberta Research Council, the Water Resources Division, the Alberta Soil and Feed Testing Laboratory, the Plant Industry Crop Clinic, the Department of Highways, and the Department of Lands & Forests. Personnel from industry, universities, other sections of the department and other research institutions have given valuable assistance, as have officers of the County of Newell, the Town of Brooks, the Eastern Irrigation District, and the Western Irrigation District.

# **SOILS BRANCH**

## **ADMINISTRATION**

The administration of soil conservation programs, legislation and the soil and feed testing program continued under the Soils Branch. Extension activities by branch staff were reduced over other years for two reasons: (1) regional supervisors were involved in many soils extension meetings, and (2) farmer's interest in fertilizer use appeared proportional to cereal grain sales. However, there was considerable interest by farmers and the general public in soil pollution by agricultural activities. Numerous short courses, seminars, teach-ins and panel discussions were attended by branch staff. A consultive fee of \$5,000.00 was provided to the Soil Science Department, Faculty of Agriculture to conduct research on soil testing methods and correlation of these with crop response under field conditions.

## **SOIL CONSERVATION**

The Soil Conservation Act was administered by the branch through local soil conservation officers. One notice under the act was issued during 1970.

Soil conservation officers contacted over 650 farmers regarding soil erosion problems. No additional municipalities passed bylaws controlling topsoil removal during 1970. A total of 37 permits were issued by the 19 municipalities having a topsoil removal bylaw. There were 19 municipalities with stubble burning bylaws with 336 permits issued.

Considerable time was devoted in a consultive or resource capacity related to resource management programs and legislation through committee and task force duties of the Conservation and Utilization Committee. The branch head was appointed to the new Conservation and Utilization Committee under the Environment Conservation Act (1970).

Soil drifting losses during 1970 were below normal. Some sporadic drifting occurred in early spring in the Lethbridge area. Concern was expressed through press and radio releases that special precautions were necessary on land fallowed for the second season as a result of "Operation Lift", the program to reduce wheat acreages on the prairies.

Serious soil losses due to water erosion resulted from intense rains during late May and June in an area from High River to north of Edmonton, the most serious occurring south of Red Deer.

The number of soil conservation projects conducted by agricultural service boards was down considerably. Approximately \$41,000.00 was spent on erosion control projects, down from \$90,000.00 in the previous year. The provincial share of this was \$20,000.00 in 1970 compared to \$32,000.00 in 1969. However, the Alberta crop adjustment assistance program increased forage crop acreage considerably and will provide benefits such as improved erosion control.



## PUBLICATIONS

The fertilizer guides were completely revised and updated in 1970 with printing and distribution scheduled for early 1971. A publication entitled, "Soil Pollution in Alberta" was printed for distribution to department staff, schools and the general public. There was an increasing demand for such information. Information related to soil pollution was compiled and interpreted as it applied to Alberta conditions. A number of meetings were held with staff from the department of Canada Department of Agriculture to assemble information and prepare a publication of animal manure disposal. Printing is scheduled for early 1971. Lack of information applicable to Alberta conditions has hampered preparation of the publication.

## SOILS EXTENSION

The branch continued to provide technical and scientific information to farmers, agricultural chemical trade, municipalities and the general public. The trend has been a need for information on soil contamination as related to agricultural activities and less emphasis on fertilizer use, probably as a result of public awareness and reduced fertilizer use.

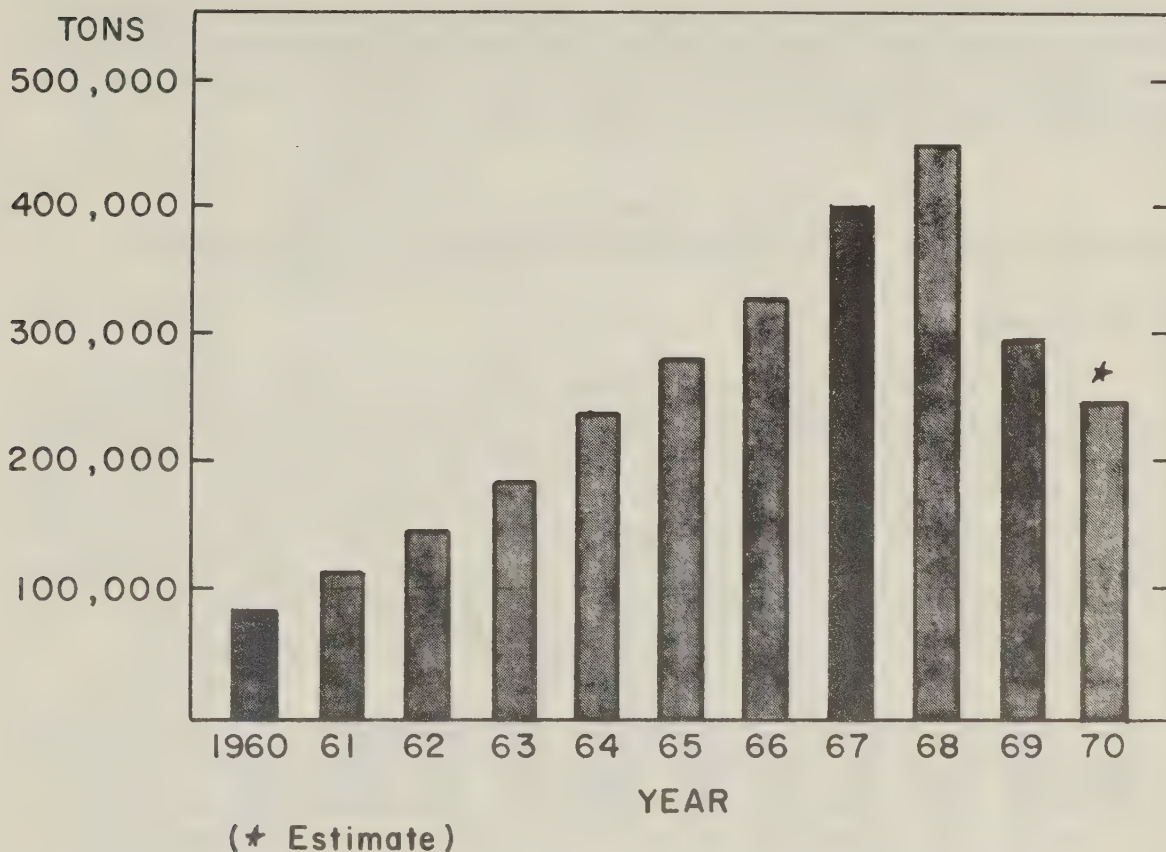
## FERTILIZER USE

The market outlook for cereal crops up to seeding time had a considerable effect on fertilizer use by farmers in Alberta in 1970. Estimated use in 1970 was 265,000 tons compared to 306,591 tons in 1969. The accompanying graph shows the trend in fertilizer use in Alberta for the period 1960 to 1970.

District agriculturists and agricultural service boards through regional supervisors placed out fewer fertilizer demonstrations than in previous years. A survey conducted through service boards indicated approximately 51% of the farmers used fertilizer in 1970 compared to 60% in 1968. Bulk handling facilities increased from 198 to 206 in 1970, and anhydrous ammonia outlets increased from 66 to 73. There were 204 fertilizer dealers or agents with soil sampling services available to farmers.

The branch co-ordinated a fertilizer test project on rapeseed with Western Canada Seed Processors. Six plot sites were established to determine the response of high (**up to 150 lb. nitrogen per acre**) rates of nitrogen and its effects on yield and oil and protein content. This project will continue to properly assess response under varying climatic conditions.

## FERTILIZER SALES IN ALBERTA 1960 - 1970



### SOIL FERTILITY APPLIED RESEARCH

Three applied research projects were conducted in 1970 in conjunction with Dr. M. Nyborg of the university Soil Science Department. This branch contributed personnel and some field equipment to establish, maintain and harvest field plots. One project of 34 rod-row plots designed to determine barley response to applied nitrogen, phosphorus and potassium on fallow and stubble on a wide variety of soil conditions were located in the Vermilion, Wainwright, Camrose, Wetaskiwin and Olds areas. Results indicated good correlations of soil test values with field responses and will be used to further improve the soil testing program. This applied research was necessary to improve soil tests in areas where previous research was lacking.

Another project to evaluate sulfur deficiencies on soils for barley and rapeseed was initiated. Eight locations in the Leduc-Wetaskiwin-Camrose area were established to study the soil sulfur levels using the newly introduced sulfur soil test. A limited amount of information was obtained as problems were encountered with equipment and germination of crops. A minor study of phosphorus placement with rapeseed was undertaken to determine maximum amounts and placement, i.e. with the seed, and banded below and to the side of seed. The importance of obtaining this information is that rapeseed is sensitive to larger quantities of fertilizer nutrients. Indications are that rapeseed will be widely grown in the future. Some investigational work was



initiated at a gas plant in the Innisfail area in co-operation with company officials which lead to an Alberta Agricultural Research Trust project to study the effects of sulfur dust on agricultural land and crops. Work continued on monitoring the acidity of soil at a gas plant in the Pincher Creek area.

## **AGRICULTURAL SOIL AND FEED TESTING LABORATORY**

### **Soil Testing**

Numbers of soil samples were again lower than anticipated. A total of 8,068 samples were tested for Alberta farmers, gardeners, and greenhouse operators, compared to 10,241 in 1969. As noted earlier, fertilizer sales were considerably reduced during the year and this has a great bearing on farmers' use of the soil testing service. Fertilizer dealers continued to play an important role in assisting farmers with soil sampling, submitting approximately 65% of the samples received from farmers.

A new sulfur test to determine sulfur deficiency in soils was introduced as a routine analysis on soils from designated areas. Some 3,000 farm soil samples were analysed from these areas and 28% were low in sulfur. Prior to the introduction of this test, a recommendation for sulfur was made on all soil samples submitted from these areas.

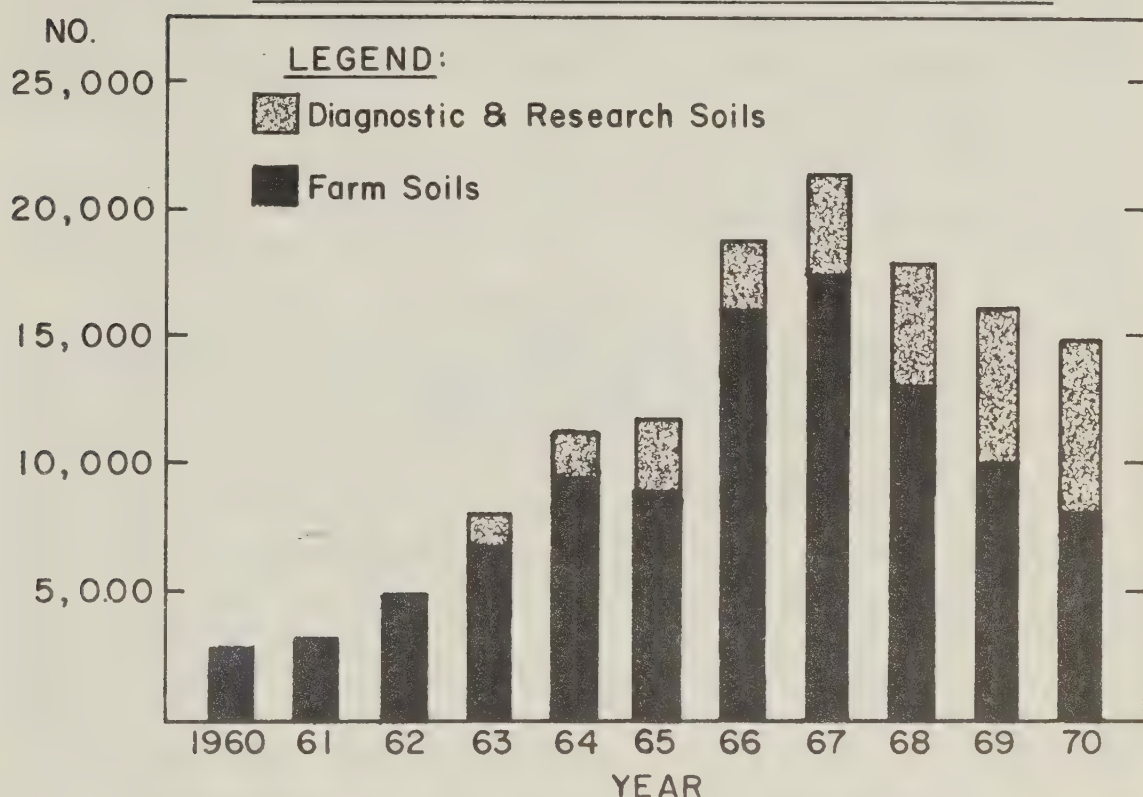
Soil tests for toxic levels of aluminium and manganese were introduced for all soil samples having a strongly acidic reaction (less than pH 5.7). Approximately 325 regular farm samples were analyzed for these elements. Eleven percent of these samples contained toxic levels of aluminium or manganese where tolerant crops or the use of lime were recommended to correct the problem.

### **Feed and Plant Tissue Analysis**

Numbers and types of feed materials received and tested for Alberta farmers are listed in the tables below. The number of regular feed samples received for analysis increased by 665 over last year. In addition, 876 samples of plant and feed material were received for investigation, diagnosis and analysis from district agriculturists, regional supervisors, other divisions and departments.

Changes in sample acceptance policy included farm grown feeds containing supplements and the provision for amino acid analysis of feeding materials. A rapid test was introduced to identify the presence of nitrates in all roughage materials received for analysis.

# NUMBER OF SOIL SAMPLES ANALYSED BY ALBERTA SOIL & FEED TESTING LABORATORY



A report of the feed sample recommendation service is included in the Animal Industry Division report.

The following tables provide a quarterly summary of the number, and type of samples analyzed and reports issued during the year. The first table lists the numbers of soil, plant and feed samples received. Tables 2 and 3 list the types of feed materials submitted and the numbers of reports issued respectively.

**TABLE 1**

## **NUMBERS OF SOIL, PLANT AND FEED SAMPLES RECEIVED**

Quarter	Feed and Plant Material		Farm		Soil			Totals
	Reg.	Diag.	Reg.	Diag.	Garden Regular	Greenhouse Reg.	Greenhouse Diag.	
Jan. 1-Mar. 31	895	743	1,099	1,408	41	80	22	4,288
Apr. 1-Jun. 30	511	1,207	1,056	1,962	147	117	110	5,110
July 1-Sept. 30	406	1,621	336	2,318	105	38	146	4,970
Oct. 1-Dec. 31	1,441	625	4,863	981	102	84	193	8,289
TOTAL FOR THE YEAR:	3,253	4,196	7,354	6,669	395	319	471	
	Total Feed 7,449				Total Soil 15,208			22,657



**TABLE II**  
**TYPES OF FEED SAMPLES ANALYZED**

	Grain	Hay	Silage
Jan. 1-Mar. 31	415	326	143
Apr. 1-Jun. 30	227	239	13
July 1-Sept. 30	166	196	28
Oct. 1- Dec. 31	730	539	192
Total For The Year	1,538	1,300	376

**TABLE III**  
**REPORTS AND RECOMMENDATIONS ISSUED TO FARMERS  
AND OTHER SUBMITTERS**

			Feed and		Farm		Soil			Totals
			Plant	Material			Garden	Greenhouse		
Quarter			Reg.	Diag.	Reg.	Diag.	Regular	Reg.	Diag.	
Jan.	1-Mar.	31	387	75	269	18	29	32	13	823
Apr.	1-Jun.	30	201	82	338	104	110	33	38	906
July	1-Sept.	30	218	77	94	49	79	11	26	554
Oct.	1-Dec.	31	571	91	1,192	32	35	26	25	1,972
TOTAL FOR THE YEAR:			1,377	325	1,893	203	253	102	102	
Total Feed			1,702		Total Soil			2,553		4,255

### Computer Program and Records

A computer terminal was installed in the laboratory in June as a shared research facility for all sections in the O. S. Longman Laboratory. The terminal provides direct access for statistical analysis and data processing at the University of Alberta computing centre and the government data centre.

Laboratory staff provided computer assistance to the Field Crops Branch in processing more than 17,000 applications under the Alberta crop adjustment assistance program. The soil test computer program was completely revised into two operations, data input and storage and recommendation output on a printed form. Preliminary summaries of average analysis of animal feeds in various areas of Alberta were completed.

Work was continued to provide regular summaries of soil and feed analyses information for specific regions and for the entire province.

### RESEARCH AND INVESTIGATIONAL PROGRAMS

Continued effort was made to serve the agricultural industry through co-operative studies and programs with research workers, industry and department projects.

A total of 10,072 samples of soil, plant material and feeds were analyzed under these programs. Work included studies of trace and major nutrient requirements for greenhouse grown chrysanthemums and tomatoes, vegetable crops grown on irrigated land and cereal grain and rapeseed on dry land; the effect of nitrogen fertilizer on grain protein content; **in vitro** analysis of roughage material.

Co-operative work was successfully initiated and completed to develop a program for establishing a vegetative cover on the tailing sands from an oil extraction plant near Fort McMurray.

A technique was developed for diagnosis of deficiency levels of selenium, an essential animal nutrient, in animal feeds. Co-operative work with research and industry indicated forages grown on some soils in central Alberta were deficient in selenium for adequate animal nutrition. This study will be continued to delineate areas of potential selenium deficiency in Alberta.

Programs providing services and consultation were conducted jointly with agricultural research sections of Canada Department of Agriculture, University of Alberta and fertilizer industry; Department of Health; Oil and Gas Conservation Board; Water Resources Division; Veterinary Services Division; Brooks Horticultural Station; Provincial Tree Nursery.

## Other Activities

A number of papers were presented by branch staff at major meetings and conferences during the year:

- i) "Agricultural Activities and the Environment" — A. W. Goettel, provincial Conference, Farmers Union and Co-operative Development Assn. Gold Eye Lake, Alberta, June, 1970.
- ii) "A Rapid Soil Sulfur Test Method to Delineate Sulfur Status of Alberta Soils" — J. A. Carson, Canadian Soil Science Society, Ottawa, July, 1970.
- iii) "Outlook for Fertilizer Use in Alberta Economy, 1971-'75" — A. W. Goettel, Western Canada Fertilizer Assn. Annual Meeting, Winnipeg, September, 1970.
- iv) "Soil Pollutants as Related to Agriculture" — A. W. Goettel, Peace River Health Unit Seminar, Peace River, November, 1970.

The branch head attended the Canada Soil Fertility Committee meeting in Ottawa in February, 1970. A tour of soil research projects in the Peace River area was organized and attended by agrologists from other government departments, university, research stations and the fertilizer industry.



Mr. D. C. Penney was granted educational leave for graduate studies at the University of Alberta to study acid soil problems in Alberta and their effect on crop growth.

The branch head continued as chairman of the soil pollution subcommittee of the Alberta Advisory Committee on Pollution Control.

## **WEED CONTROL AND FIELD SERVICES BRANCH**

### **GENERAL**

Moisture conditions ranged from good to excellent in Alberta in the spring of 1970, but generally the weather was cool, delaying early tillage and seeding. Conditions were particularly conducive to the growth of wild oats resulting in the heaviest infestation of this weed in years. Due to the federal "Operation Lift" program wheat acreage was reduced, but there was a significant increase in the acreage seeded to rapeseed. Rape crops on stubble land in particular were generally weedy. Wild oat control herbicides (**diallate and barban**) were used to a fair extent; for broadleaved weeds the two herbicides nitrofen and trifluralin were only tried to a limited extent. Spraying for cereal crops was also curtailed because of adverse weather conditions combined with a pessimistic economic farm outlook. Canada and perennial sow thistle increased this year and infestations along roadsides, railways and lakeshores caused many problems.

Good harvesting conditions cleared many fields early allowing fall work to be done. Many fallow fields went into winter well worked for weed control.

### **WEED INSPECTION AND ENFORCEMENT**

#### **Agricultural Fieldmen in Municipalities**

The agricultural fieldman force, which assumes weed inspection responsibilities and services, has now expanded to 58 full-time fieldmen and 16 full-time assistants. There were also 104 part-time summer assistants employed in 1970. These operate in municipal districts, counties and improvement districts where agricultural service boards or agricultural committees are organized.

#### **Weed Inspection in Improvement Districts**

Five weed inspectors were appointed by the department in those improvement districts where no agricultural service boards are organized, but where there is a fair amount of farming. The inspectors are engaged and supervised by the Weed Control Branch and paid out of I.D. trust funds.

**Weed Inspection in Cities, Towns and Villages**

There were 218 weed inspectors employed in urban areas. In a number of cases municipal weed inspectors were appointed by the urban centres located within the municipality.

For the third year in succession, a weed control school was organized for the City of Edmonton to train the inspection force. Topics covered were weed identification, control methods and public relations. Four other schools were organized to provide up-to-date information for urban and other inspectors.

A number of demonstrations were set out in the outskirts of Edmonton, Calgary and Lethbridge to provide first hand information for city inspectors on proper use of herbicides for various weed species.

**Regional Plant Industry Supervisors**

Four regional plant industry supervisors located at Fairview, Vermilion, Calgary and Lethbridge assisted in setting up practical weed control programs including weed extension activities, and in directing municipal supervisors in carrying them out. A fifth supervisor assumed regional activities in Red Deer in November.

About 20% of the activities of the regional staff were in various aspects of weed control.

**Official Notices Issued Under the Noxious Weeds Act**

The following table shows the number of official notices served by weed authorities to rural land owners in municipalities. (1963-69 records are listed for comparison.)

Year	No. Notices to Destroy Weeds	Acres Affected	No. Notices to Prohibit Seeding	Acres Affected	No. Notices Prohibiting Threshing	No. Court Cases
1963	2,145	41,859	617	25,394	8	11
1964	1,759	35,992	624	24,701	5	10
1965	1,664	43,274	567	20,880	5	3
1966	1,373	38,655	598	15,110	4	3
1967	1,365	42,028	375	17,256	7	1
1968	1,125	41,327	678	17,611	4	1
1969	800	25,647	311	18,581	0	1
1970	1,157	33,212	472	34,775	0	1

It is noteworthy that seeding was prohibited on 34,775 acres of cultivated land. This was due to serious weed infestations where control measures were not taken as directed by the inspectors.



## The Noxious Weeds Act

There were no amendments made to this act in 1970.

Arrangements were negotiated with the Inspection Service Branch, Attorney General's Department for the inspectors to enforce sections of the Noxious Weeds Act dealing with scattering of weed seeds on highways by open trucks. **Warnings only** to truckers scattering weed seeds were given during the year, as an education program.

## WEED SURVEYS

### Persistent Perennial weeds

The continuing annual surveys by agricultural service boards indicate the following approximate infestations:

Weed	1969		1970		Some Areas Showing Heavy Infestation
	Farms	Acres	Farms	Acres	
Field Bindweed	521	6,263	405	4,700	Lethbridge, Taber
Hoary Cress	306	15,748	274	13,873	Lethbridge, Cardston
Leafy Spurge	236	4,232	205	7,509	Cardston, Provost
Russian Knapweed	77	605	50	572	Lethbridge, Claresholm
Toadflax	5,922	106,950	6,080	211,355	Throughout Province
Bladder Campion	55	435	61	1,322	Throughout Province

The significant increase in toadflax was due mainly to a more intensive survey and extremely favorable growing conditions for this weed.

Sodium chlorate and borate-chlorate compounds were used extensively but there was a significant increase in the use of picloram (**Tordon**) on nonagricultural land including roadsides and pastures. Picloram was not registered for use on agricultural land but field staff were requesting extension of registration for this purpose.

## NEW WEEDS AND WEEDS OF INCREASING IMPORTANCE

**Erodium cicutarium** (stork's-bill) increased in a number of areas in the Provost-Cadogan region and from Stettler. Investigations for control started this year.

**Medicago lupulina** (black medick) was reported from Athabasca and a number of other areas.

**Galium aparine** (cleavers) increased in the Edmonton, Lacombe and Didsbury areas.

**Setaria viridis** (green foxtail) continued to increase significantly in the province, particularly in the east-central region.

**Draba nemorosa** (wood whitlow grass) appeared in the Ponoka area.

**Saponaria vaccaria** (cow cockle) was reported from many sandy fields as well as heavier clay soils.

**Lolium persicum** (Persian darnel) continued to show up as a problem grass weed in parts of Peace River.

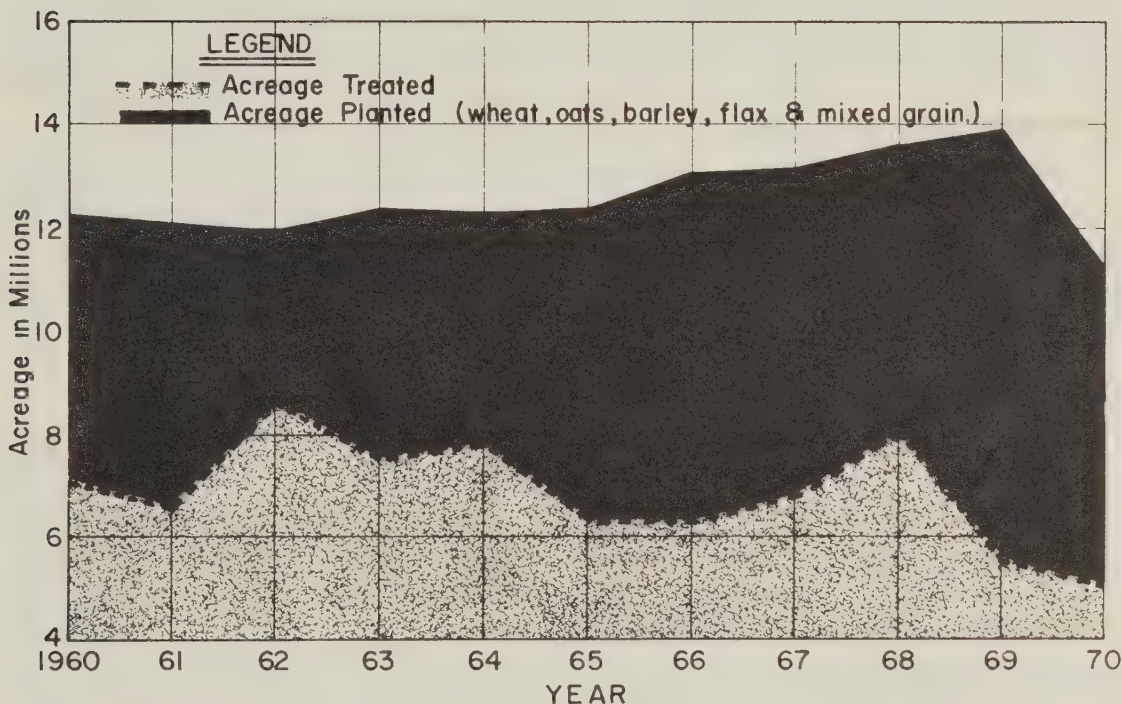
**Spargula arvensis** (corn spurry) was reported from the La-combe, Edmonton and Morinville regions and is becoming a problem.

## CHEMICAL WEED CONTROL

### Selective Herbicides

There were 5,098,000 acres of field crops treated with 2,4-D and MCPA; this was 9% less than last year with the reduction being mainly due to weather and a cash shortage. The chart below shows the trend in 2,4-D, MCPA use in the period 1960-1970.

2,4-D AND MCPA USE IN ALBERTA  
(1960-70)



PREPARED BY: T. Footz , Agricultural Officer  
Weed Control & Field Services Branch  
Alberta Department of Agriculture  
Edmonton , Alberta

DEC. 1, 1970

MCPA, 2,4-D and related compounds continued to be the main herbicides used. Ester formulations continued to take the lead again, but were reduced by 16% over last year. Amine formulation use increased by 27% over last year. The use of herbicides such as dichloroprop (Estoprop), dicamba (Banvel), and bromoxynil (Buctril M and Brominal M) were used where “hard-to-kill annual weeds” were a problem but generally their use was decreased. The higher cost of these newer herbicide mixtures combined with a depressed farm economy held down their use.



TCA and Dalapon use for green foxtail control decreased this year. The treated acreage is relatively small.

There were 351,000 acres treated with wild oat chemicals compared to 522,500 acres in 1969. There has been a yearly decrease in wild oat control herbicides during the last three years.

A total of 22,197 miles of municipal roads were sprayed for weeds and 4,577 miles for brush control. Eight municipalities used 2,4,5-T in the spray mixture. Treatment of irrigation ditches decreased significantly from last year.

Nine agricultural service boards continued to distribute herbicides to farmers, the same number as last year. There was much concern expressed by the industry that municipalities are duplicating services provided by the trade sector.

### **Soil Sterilants in Municipal Weed Control Programs**

Soil sterilants continue to be used for eradication of patches of persistent perennials, but in decreasing amounts as new selective herbicides were introduced. Soil sterilants were purchased in carload lots and resold to municipalities at cost.

These herbicides continued to be used under a special assistance program to control persistent perennial weeds. On private land the farmer pays  $\frac{1}{3}$  cost of the chemical; on roadsides the department shares cost equally with the municipality. Maximums are set on the assistance provided.

### **Spray Equipment**

The estimated number of farmer-owned sprayers in Alberta in 1970 was about 26,000. Sprayer schools were still popular: six were held in June where branch personnel were involved, but there are a large number conducted by municipal fieldmen. Intensive spraying schools conducted by Gulf Oil Ltd. (Carbyne application), Allied Chemical Services (Brominal M application), and others were very well received by the farmers. Municipal fieldmen calibrated 481 sprayers this year as a service to farmers.

### **Weed Control with Forage Crops**

The use of forage crops in controlling weeds was incorporated with "Operation Lift" program. (See report of forage use in this program under "Field Crops Branch".)

### **Weed Control on Crown Land**

Municipal agricultural fieldmen and improvement district weed inspectors investigated and took action on many weed problems on Crown land. As a result, some unoccupied Crown land was leased to adjoining land owners with special lease concessions granted by the Department of Lands and Forests. In seven cases, expenses incurred in controlling weeds were paid by the Department of Agriculture totalling about \$1,500.00. This sum is subject to recovery when the land is sold.

Investigations in Miquelon Lake to determine the best way to control weeds along lakeshores were completed in 1969 after five years of trials. Assessments were continued in 1970. Preliminary information reported by the Plant Science Department, University of Alberta, indicated it is possible to eliminate thistle growth with picloram used in small amounts. The weed growth was replaced by wild barley and other grasses.

**ROADSIDE WEED CONTROL**

**Municipal Roads**

Most municipalities have adopted a policy of backsloping and seeding roadsides with a suitable forage mixture to control weeds and prevent erosion. The extent of this project since 1965 is shown below:

	1965	1966	1967	1968	1969	1970
Miles sloped and seeded	2,883	2,371	2,600	2,666	1,765	1,281

The department assisted in this program by providing a grant of \$500.00 to every municipality for the purchase of appropriate forage seed mixtures.

There were also 26,821 miles of roadsides mowed.

**Government Highways**

The Department of Highways continued to expand its program of roadside seeding and spraying weeds on the rights-of-way. The following is the extent of spraying done by that department:

	Main and Secondary Highways		District and Local Roads in Improvement Districts	
	Miles	Acres	Miles	Acres
Weed Spraying	1,617	8,216	1,242	7,764
Brush Spraying	nil	nil	4	10

**ALBERTA WEED ADVISORY COMMITTEE**

This committee, composed of persons representing research institutions, industry and this department, is advisory to the Minister through the Alberta Agriculture Co-ordinating Committee. The branch head is the secretary.

A resolution was submitted to the Alberta Agricultural Co-ordinating Committee (AACC) requesting the federal government to extend the use of picloram as spot treatment on agricultural land.

The Committee made the following recommendations to AACC:

- (a) to extend picloram use for spot treatment of persistent perennial weeds on crop land in Alberta providing the herbicide is used by licensed pesticide applicators or under their direction and in accordance with the Agricultural Chemicals Act and regulations,



- (b) that AACC take whatever steps are necessary to implement additional weed control research in shelterbelts by federal, provincial or other agencies,
- (c) that such steps be taken as are necessary to restrict the sale of herbicides to farmers by municipalities,
- (d) that proper federal authorities initiate action to revise the Canada Seeds Act to decrease the amount of allowable weed seeds in all seed grades and to change the status of specific weed species in the schedule.

## **APPLIED RESEARCH**

Applied research projects were undertaken to provide information on which to base weed control recommendations in areas where such information is not complete. These projects were established in conjunction with research institutions, agri-business, district agriculturists and agricultural fieldmen whenever possible, to ensure maximum benefits and exposure.

Eight projects were undertaken on forage crops five resulted in published abstracts and five will be continued next year. A project (published abstract) and a demonstration were conducted on perennial weeds in noncropped areas. Preliminary work on methods of weed control in aquatic environments was conducted on Lakes Isle, Wabamun and Sylvan. Active participation in a co-operative Western Canadian TCA residue trial with CDA Research Stations also occurred.

## **AGRICULTURAL SERVICE BOARDS**

Through 58 agricultural service boards and committees, municipalities have taken a more positive role in weed control and related agricultural programs. Grants were provided to assist various weed programs and projects. The ARDA land reclamation project was not operative in 1970.

Most of the weed control work in municipalities was conducted by agricultural service boards (agricultural committees in counties). Provincial weed work, including regulatory service, and educational aspects, were closely associated with these boards.

Because of weed situations, agricultural service boards in seven districts placed ten quarter sections of land under supervision. Nine parcels were placed under reclamation.

The ARDA field, roadside and farm shelterbelt plantings project also came under the agricultural service board agreement with assistance available to all municipalities wishing to participate in this program.

Agreements between the Department of Agriculture and 58 service boards provided the following incentive grants for the following Plant Industry Division programs.

1. Assistance for demonstrations and publicity .....	\$ 50,900.00
2. Weed Control .....	\$228,737.78
3. Soils .....	\$ 42,199.51
4. Crop Protection and Pest Control ..	\$ 23,934.92
5. Field Crops .. ..	\$ 1,350.00
6. Horticulture .....	<u>\$ 34,578.00</u>
Total .....	\$381,700.21

**SEED CLEANING PLANT PERMITS**

Under the guidance of this branch, municipal agricultural fieldmen have inspected, rated and issued permits to all qualifying seed cleaning plants doing custom cleaning. A new score card was established and a number of schools held to instruct inspectors in proper rating of plants. There are a total of 220 stationary and portable seed cleaning plants in the province. A total of 16,108,881 bushels of grain were cleaned by 67 municipal plants.

**EXTENSION AND TRAINING**

This phase of responsibility constitutes one of the activities of this branch and is carried out through meetings, short courses, field days and the mass media.

The following publications were prepared and printed this year:

- 1. **1970 Weed Control in Cereal and Oilseed Crops**
- 2. **A reprint of Scentless Mayweed Control pamphlet**
- 3. **A revision of Weed Control in Specialty Crops**

A monthly release, entitled “Weed-O-Gram and Agricultural Service Board Notes”, was initiated in May, 1969, and has been issued on a continuing basis. This publication serves as a vehicle for providing field staff with information on trends and developments in technical and administrative matters relating to weed control.



# **REPORT OF THE PROGRAM DEVELOPMENT DIVISION**

**N. S. Thomson, M.Ag., P.Ag., Director**

## **AGRICULTURAL PRODUCTS MARKETING COUNCIL**

C. H. Ferries, B.S.A., M.S., P.Ag., Chairman

## **IRRIGATION SECRETARIAT**

J. H. Graham, B.Sc., P.Eng., Manager

## **MARKETING DEVELOPMENT BRANCH**

Marketing Co-ordinator—(vacant)

## **MUNICIPAL RELATIONS BRANCH**

J. R. Gylander, B.Sc., P.Ag., Branch Head

## **RESOURCE CONSERVATION AND UTILIZATION BRANCH**

H. W. Thiessen, B.Sc., M.Ag., P.Ag., Branch Head

### **DIRECTOR'S REPORT**

Additonal to the branch activities reported hereunder, the division continued functions of an interdisciplinary and co-ordinating nature.

Progress was marked in the management development program relative to regionalization. Emphasis is being placed on information retrieval and the role of the department in respect to research activity.

The Marketing Development Branch was established and engaged in several activities from which a stable policy for marketing assistance will emerge.

Liaison with other agencies, an expanding role, helps provide knowledge and impetus for a flexible approach to the many areas of concern to the agricultural industry.

### **REPORT OF THE AGRICULTURAL PRODUCTS MARKETING COUNCIL**

The Marketing Council continued to give guidance to persons and commodity groups concerning the use of The Marketing of Agricultural Products Act, and to supervise the operation of boards and commissions that have been established under the act.

A plan for an Alberta Fresh Vegetable Commission was established. The purpose of the commission is to improve the economic well-being of the fresh vegetable industry by developing improved marketing methods, grading and quality standards, research and promotional programs.

Plans under review were for a Forage Seed Marketing Board, and for a sheep commission. A plan had been drafted for the establishment of an Alberta Honey Commission but after considerable study the beekeepers at the annual meeting of their association decided not to proceed.

The year 1970 will be remembered as the year of the "chicken and egg war" in which the governments of nearly every province condoned regulations made by producer marketing boards to severely restrict the interprovincial flow of eggs, broiler chickens and turkeys. The government of Alberta was very reluctant to authorize the use of such regulations but did so in the interests of protecting producers from unfair competition in the market place.

The composition of the Marketing Council was revised owing to the retirement of the chairman, Mr. D. H. McCallum. An Order-in-Council passed October 13, 1970, appointed the following persons: Clarke H. Ferries - Chairman; C. Douglas Radke - member and secretary; George R. Milne - member and to act as chairman in the absence of the chairman; Leonard P. Bromham - member; Kenneth F. Williams - member; and Peter D. McCalla - member.

## **IRRIGATION SECRETARIAT**

### **OBJECTIVES**

The objectives of the Irrigation Secretariat are to effect a sound irrigation policy for the province and irrigation districts and to efficiently administer the province's irrigation program. The manager of the Irrigation Secretariat is to act as secretary to the Irrigation Council and to establish and maintain communication between the council and the irrigation districts and other persons and organizations dealing with matters relating to irrigation.

### **THE IRRIGATION ACT, 1968**

The Irrigation Act, 1968, expanded the Irrigation Council and amalgamated all statutes pertaining to irrigation districts into one act.

The Irrigation Act, 1968, was amended in 1969 and 1970. The 1970 amendments allowed for an irrigation district to be described either by a list of the parcels of land in the district or by the outer boundaries of the district. The powers of the Irrigation Council were expanded to hear petitions and make orders pertaining to the reorganization of existing districts as well as to the change of the area of a district, the dissolution of a district and the amalgamation of two or more districts.



An amendment provided for a "maximum prescribed percentage" to be added to unpaid rates by the regulations of the Lieutenant Governor in Council. The part on water damage was amended to exempt irrigation districts from seepage damage claims provided the district applied and submitted a ditch rehabilitation plan for approval by the Irrigation Council.

## **IRRIGATION COUNCIL**

The Irrigation Act, 1968, provided for the restructuring of the Irrigation Council which now consists of five members appointed by the Lieutenant Governor in Council. The membership of the council consists of Hon. H. A. Ruste, Minister of Agriculture, as chairman; C. J. McAndrews, Director of Extension and Colleges Division, as vice-chairman; R. E. Bailey, Director of Water Resources Division; N. S. Thomson, Director of Program Development Division and F. J. Brewin of Purple Springs.

J. H. Graham is the secretary to the council and is the manager of the Irrigation Secretariat.

The new irrigation act makes provision for the irrigation district to enter into agreements with the Government of Canada, the Government of Alberta or local authorities for the purpose of cost sharing on irrigation rehabilitation programs. This accommodates the action required to reconstruct the physical works in irrigation districts where required, to carry out development of drainage and seepage control and to reconstruct or extend existing districts distribution systems where desirable as proposed and recommended in the report of the Irrigation Policy Committee submitted to the government in 1967.

In accordance with these recommendations, work continued toward establishing an irrigation rehabilitation program and negotiations are being carried on with the federal government towards the development of a cost sharing program. Although final agreement has not been reached, the Government of Alberta has entered into cost sharing agreements with the thirteen irrigation districts for the 1970-'71 fiscal year for an aggregate sum of \$1,122,825.50, 86% of which is provided by the Province. This amount covers the expenditure for fifty-two separate projects that have been approved for construction by the irrigation council.

## **MARKETING DEVELOPMENT BRANCH**

During 1970, a Marketing Development Branch was established to increase programs of assistance to producers and the industry in the marketing of agricultural products. A marketing coordinator was hired in June to develop a marketing program and co-ordinate various related activities of the department. The department is supporting producers, processors, farm organizations, boards, commissions and agricultural businesses to expand and develop markets. Specific commodities are being emphasized

through a stepped-up program of promotion and consumer education. Plans include: product development, market research, new packaging and labelling and improved transportation for agricultural commodities. The department is expanding and improving the market information available to producers.

The Department of Agriculture has increased its activities and negotiations with federal and other governments on national marketing matters. It participated in trade missions and food conferences in other countries. In the areas of export market development, a marketing commissioner was employed by the Government of Alberta in July. The commissioner is responsible to the cabinet; however, a great portion of his time is devoted to searching for new markets for Alberta agricultural products.

Specific attention was focused on the following agricultural industries: hog, turkey, chicken, broiler, egg, rapeseed, dairy, potato and honey.

Initially, a program was jointly undertaken with the Alberta Hog Producers' Marketing Board. A \$10,000 government grant was designated to advertise Alberta pork for the Vancouver market and an additional \$10,000 grant was designated to assist with publication of recipe leaflets. The department constructed and staffed a mobile promotional trailer, as well as offering assistance to development of the hog producers' educational and advertising program. In evaluating the initial program, it was shown that pork sales in the summer of 1970 increased by approximately 20% over the summer of 1969. There was no change in consumer attitudes towards pork, which points the need for additional consumer education.

The Alberta Egg and Fowl Marketing Board received a grant of \$2,500, plus assistance in developing a program to increase the sale of fresh eggs during the January-February 1971 period.

The Alberta Red Meat Export Council, consisting of the major Alberta packing firms, the Alberta Cattle Commission, the Alberta Hog Producers' Marketing Board, and the Meat Packers Council of Canada, was established to increase possibilities for red meat exports. The marketing commissioner is chairman, and the marketing co-ordinator is secretary.

The Alberta marketing commissioner, in searching for new markets for agricultural products, travelled to Japan and Korea. The initial trip resulted in several prospects for the export of beef, barley, rapeseed, egg melange and vegetables.

The marketing co-ordinator from the inception of the branch to December 18th, 1970 was Mrs. Linda Pickell.



## **MUNICIPAL RELATIONS BRANCH**

### **AGRICULTURAL SERVICE BOARDS**

A total of 59 Agricultural Service Boards were in operation during the year. Some reorganization was necessitated at the municipal level following boundary revisions in improvement districts and the decision of the Fairview M.D. to suspend agricultural service board participation. Agreements were completed with all boards embracing programs with five divisions and comprising some 25 different projects for which department grants were available.

For the first time agricultural service board programs were channeled through the regional offices for review at that level prior to approval at provincial headquarters. The practice of holding one day regional agricultural service board conferences for the purpose of policy discussion and regional co-ordination was continued.

Liaison with municipal governments continues as an important function of this branch. This is accomplished by meetings with the executive of the Alberta Association of Municipal Districts & Counties, meetings with agricultural service boards and municipal secretaries. In addition, a Department of Agriculture 'desk' was maintained throughout the annual A.A.M.D.C. conference where delegates could communicate with department representatives.

A survey of training needs was conducted with agricultural fieldmen which resulted in the organization of an in-service training course to be held at Olds College early in 1971.

The use of advisory committees to serve municipal councils and extension personnel at the district level is gradually expanding. Their contribution is most effective in those districts where training has been an integral part of their establishment.

### **AGRICULTURAL SOCIETIES**

Classified fairs were held by the following in 1970:—

- 'A' Class — Calgary, Edmonton, Lethbridge, Medicine Hat, Red Deer.
- 'B' Class — Camrose, Grande Prairie, Lloydminster, Olds, Vegreville, Vermilion, Wetaskiwin.
- 'C' Class — Battle River, Benalto, Darwell, Loughheed, May-erthorpe, Millarville, Peace River, Pincher Creek, Smoky River, Vauxhall, Westlock, Wild-wood, and Willingdon.

Medicine Hat obtained 'A' class status in April, 1970.

Agricultural Societies operating unclassified fairs and other activities were:— Athabasca, Alix, Barrhead, Bonnyville, Cardston, Central Alberta, Drumheller, East Central Alberta, Fairview, Hanna, High River, Lamont, Nanton, Okotoks, Provost, Rimbey, Rocky Mountain House, Spirit River, Stettler, St. Paul, Taber, Victoria Trail, Willow Creek, Valleyview.

The activities organized or sponsored by these agricultural societies included bench shows, community fairs, horticultural shows, livestock shows and sales, seed fairs, agricultural short courses and demonstrations.

The Edmonton Exhibition Association comprised the only application during the year for a loan guarantee under the provisions of the Agricultural Societies Act.

Charters were issued to three new societies — Carmangay Agricultural Society, High Level Agricultural Exhibition Association and the Barrhead Exhibition and Agricultural Society. The former Barrhead Agricultural Society was officially dissolved in June, 1970.

The annual meeting of the Alberta Agricultural Societies Association was held in Edmonton, January 13, 1970, in the agriculture building. Mr. G. R. Loughheed, Benalto, was re-elected president. Annual reports of the various agricultural societies indicate a sustained or increased interest in fairs and related activities. Many report problems in financing capital improvements and rely on income from the recreational and amusement type programs to operate.

A noticeable trend in fairs and exhibitions, especially in the 'A' Class, is the development of more meaningful kinds of displays and demonstrations. Examples in 1970 were 'Wonderful World of Beef' at Edmonton, 'Milk is Marvelous' at Calgary and 'Irrigation Wonderland' at Lethbridge. Traditional livestock and homemaking competitive exhibits are starting to die at some of these fairs and exhibitions.

Another feature of many of the Alberta fairs in 1970 were displays and demonstrations featuring Alberta grown products. District home economists spearheaded this development which was part of the province's emphasis on marketing.

## **AGRICULTURAL MANPOWER PROGRAMS**

The Alberta Federal-Provincial Agricultural Manpower Committee working under the Federal-Provincial Agricultural Manpower Agreement, has been involved in general agricultural labor problems of mobility and training.

During the year, W. M. Bayda was appointed by the Department of Agriculture as a supervisor of agricultural manpower and will serve as a secretary of the Federal-Provincial Committee. Chairman of the committee is J. R. Gylander.



The chairman attended the annual meeting of the Canada Agricultural Manpower Committee in February, 1970, and a meeting of the Canada Sub-Committee on Agricultural Manpower Training Needs in June, 1970.

These meetings stressed training of agricultural manpower in relation to the farm operator as well as permanent and seasonal workers. The use of seasonal workers was encouraged, although experience in most provinces indicates that this has limited application in agriculture.

To assist in the work of the provincial committee, there are two sub-committees. The sub-committee on labor movement meets at Lethbridge every two months to deal with the problems of labor movement. This movement of labor has been in operation since 1943.

The second is the sub-committee on training appointed in June to identify agricultural training needs and to assess training programs. Membership on this sub-committee is comprised of the following:

**Alberta Department of Agriculture — Program Development  
Extension and Colleges**

**Alberta Department of Education — Vocational Training**

**Human Resources Development Authority**

**Unifarm**

**Department of Manpower and Immigration**

The number of workers required to thin and hoe sugar beets continues to be about 2,000 a year. There is a good demand for seasonal workers exceeding the availability of workers.

The number of seasonal workers which came under the organized movement consisted of 683 adults this year. This was a reduction in the number of workers requiring travelling assistance. The remaining workers came by their own means. This appears to be a continuing trend.

Seven hundred and sixteen vegetable, sugar beet and potato farms were examined for adequacy of seasonal housing for workers. All housing which was provided to workers brought under the organized movement passed inspection.

Alberta has had a program of assisting farmers in building of hostels for seasonal workers since 1967. The total expenditure on hostels to date is \$72,032.00 with the federal and provincial governments contributing \$28,812.00 of this amount. The highest average grant per farmer was \$2,301.00 and the highest average grant per worker was \$158.00.

In 1970, the provincial cabinet approved grants to individual farmers for building or improving housing for seasonal workers. The grant was based on 40 per cent of the expenditure up to \$150.00 per worker or \$2,000 per farmer.

Under provisions of individual housing grants, two applications were received and approved for \$1,500.00 and \$2,000.00, respectively. More applications are expected to be made before the end of the fiscal year.

No assistance for hostels was requested in the last year. There are some definite drawbacks to communal living for workers. Workers appear to prefer to prepare their own meals and deal with farm employers individually.

Annual inspection of housing for seasonal workers is also part of the sub-committee's responsibility. Because of recent criticism of the quality of housing, further controls may be required.

There were eight mechanical beet thinning machines in use in Alberta this year, thinning approximately 1,110 acres of sugar beets and replacing about 100 beet workers.

Under the auspices of the International Agricultural Exchange Association in the past three years from 200 to 300 young people per year have come to work on Alberta farms.

A visa of six months from April to October is obtained for agricultural work. Both the trainee and the host farmer-employer are under contract with the association.

This organization was founded in 1963, by a group of young farmers who were interested in providing rural youth with an opportunity to spend some time in other countries as participants in organized exchange programs. This program in Alberta is co-ordinated through Olds Agricultural and Vocational College.

The federal-provincial agricultural manpower sub-committee on training has been largely instrumental in getting Canada Manpower support for the longer, in-depth training courses for farmers in Alberta. Most of these courses will commence January, 1971.

The four main courses supported by Canada Manpower are as follows:

1. Four-week business management and decision-making offered at 11 different places in the province.
2. Twelve-week general farm management offered at 15 places.
3. Two-week introductory farm management offered at Fairview for 60 farmers.
4. Three-week introductory farm management offered at 4 places.

In addition to meeting the training needs of farmers, training was organized for farm workers. Sheep production will be offered at Fairview, hog production at Vermilion, and dairy production at Olds.



Lack of good trained and experienced farm workers among the larger livestock farmers has now reached a critical point. Training for farm workers is being offered to alleviate this problem.

**RESOURCE CONSERVATION AND UTILIZATION BRANCH  
CONSERVATION AND UTILIZATION COMMITTEE**

The Utilization of Lands and Forests Act was repealed in the 1970 session of the legislature effective July 1, 1970.

Enabling legislation authorizing the purchase of lands and the guarantee of land improvement and development loans were transferred to the Department of Agriculture Act.

Legislation providing for the establishment of the Conservation and Utilization Committee was transferred to the Environment Conservation Act. Order-in-Council 1499/70 re-established the committee with some changes in membership and additional representation from the Department of Attorney General, as well as the Oil and Gas Conservation Board. It also provided that the Natural Resources Committee of Executive Council should act in a liaison capacity between the committee and the Lieutenant Governor in Council.

The majority of this branch's functions related to business of the Conservation and Utilization Committee. The committee is not a part of the Department of Agriculture but for administrative purposes the secretariat is at present attached to the department.

**LAND ASSEMBLY AND FARM ADJUSTMENT AND  
CONSOLIDATION PROGRAM**

Table I indicates land purchases for alternate land use and resource adjustment.

**TABLE I**

<b>Purpose of Purchase</b>	<b>No. of Parcels</b>	<b>Cost</b>
Farm and Woodlot Adjustment	115	\$ 602,176.00
Grazing Reserve Assembly	24	121,322.63
Forestry Assembly	10	15,005.00
Watershed Conservation	26	186,604.25
Community Pasture Assembly	5	11,950.00
Recreation Assembly	24	213,355.00
Wildlife Conservation	2	13,680.00
Conservation Assembly	<u>70</u>	<u>67,855.00</u>
	276	\$1,231,947.88

One farm adjustment committee was appointed in an area west of the 5th meridian in counties No. 3, 10 and 14 and I.D. 11; making a total of 15 committees.

Farm adjustment purchases are primarily confined to C.D. 12, C.D. 14, C.D. 15 and W-5 area where farm adjustment committees function. The prime criteria for purchases were old age, health, non-economic farm size, retraining of farm operator and saving of government services.

## LAND IMPROVEMENT AND DEVELOPMENT PROGRAM

Table II indicates the program to date.

TABLE II		Guaranteed Loans		
Applications Filed	Approved	Improvements	Issued	
29	28	3,130 acres clearing 2,570 acres breaking	\$91,243.00	

This program is applicable in census division 14 only and is available on a selective basis as a part of the total rural development program.

## CANADA LAND INVENTORY PROGRAM

The objective of this program is to map the resource potential of the settled parts of the province. The 10-year program is financed in total by the federal government at approximately \$2,100,000. The Alberta Soil Survey, Department of Lands and Forests and Canadian Wildlife Service carry out the surveys with the provincial co-ordinator providing the necessary liaison and the Conservation and Utilization Committee providing the policy guidance.

Table III indicates the 1970 progress at a cost of approximately \$200,000.

TABLE III — MAPS

Capability	Completed Prior to 1970	Completed in 1970	Total to Date	In Progress	Total	Colored Maps Published
Agriculture	25	6	31	7	38	11
Forestry	20	4	24	4	28	4
Recreation	27	7	34	4	38	1
Ungulate	22	7	29	11	38	3
Waterfowl	31	7	38	completed	38	9
Sport Fish		24	24	14	38	NA
Present Use	38		38	completed	38	NA

The multiple comparison of maps of all capabilities was possible in only a few regions. The maps were being used in administration, planning and research of renewable resources by provincial and municipal agencies, notably in the Foothills Study, the Peers-Whitcourt plan, the Hinton-Yellowhead plan and by the Land Use Assignment Section for public land use classification. Maps were being received by 140 offices in Alberta including libraries.

Difficulties with maps were being investigated to improve computer handling of the information in the Canada Geographic Information System which was designed as a land data storage and analysis service to governments. In addition, the extension of mapping into unsettled areas was being pursued.

The data gathering phase of this program is anticipated to terminate in 1972.



# **REPORT OF THE VETERINARY SERVICES DIVISION**

**J. G. O'Donoghue, B.S., D.V.M., Director**  
**H. N. Vance, V.S., D.V.M., M.Sc. Assistant Director,**  
**Laboratory Services**

## **FIELD SERVICES**

J. P. Best, V.S., D.V.M., Head, Veterinary Inspection  
W. P. Brisbane, V.S., D.V.M., Head, Communicable Diseases

## **LABORATORY SERVICES**

G S. Wilton, V.S., D.V.M., Head, Animal Pathology  
J. Howell, V.S., D.V.M., Head Poultry Pathology

## **LETHBRIDGE**

W. N. Harries, B.V.M.S., M.R.C.V.S., Head, Lethbridge Laboratory

## **FAIRVIEW**

R. G. Christian, V.S., D.V.M., Head, Fairview Laboratory

## **TOXICOLOGY LABORATORY**

Mrs. K. I. Strausz, B.Sc., (Honors), Head, Toxicology  
J. E. Roff, B.Sc., Ph.D., Assistant Head

## **FUR FARMS BRANCH**

R. W. Gillies, Supervisor, Fur Farms

The major events of the year were, the official opening by the Premier, June; of the veterinary clinic at Fairview; the occupancy of the regional laboratory, Fairview; December 3; and the introduction of the emergency guaranteed loan policy for Alberta mink breeders June 1.

There was a 25% increase in assignments to the laboratories, in addition to demands that arose from bovine abortion problems and investigations into mercury and organochlorine residues in pheasants and other game birds.

The Director was named a member of the Provincial Board of Health, June 5, representing the department.

In November and December, rabies was identified in 3 dogs, 1 cat, 5 coyotes and 5 domestic animals. Cabinet approved the recommendation of the Central Rabies Control Committee to proceed with the implementation of measures designed to control the disease in wildlife spreaders, very similar to the comprehensive program successfully applied during the rabies episode of 1952-1956.

The division continued to meet requests in all matters that related to veterinary medicine and where applicable to human health. The co-operation and assistance of other departments and agencies, including the departments of Health and Lands and Forests are gratefully acknowledged.

## FIELD SERVICES

Extension and field activities included administration of official legislative programs such as livestock inspection, communicable disease control, herd health programs and livestock medicine control. Specific disease outbreaks and pollution problems involving livestock were investigated. Additional responsibilities included lectures at the universities and vocational colleges, instructional short courses on animal health problems for farmers, the development and operation of a veterinary clinic at Fairview, supervision and sanitary standards at a number of new A.I. studs.

### SUMMARY OF ACTIVITIES

#### FIELD INVESTIGATIONS

Cattle .....	39
Swine .....	28
Sheep .....	14
Horses .....	5
Poultry .....	8
Fur .....	91
Wildlife .....	7
Other .....	2
Total .....	194

#### MEETINGS AND SHORT COURSES

Domestic Animals .....	32
Poultry .....	6
Professional .....	24
Community Pastures .....	13
Fur Breeders .....	16
Regional .....	6
Clinic .....	6
Others .....	17
Total .....	120

#### INSPECTIONS

Markets .....	153
Stockyards .....	118
Livestock Medicine .....	413
Slaughter .....	53
S.H.H.P. ....	191
R.O.P. ....	96
Swine Sale .....	66
Pastures .....	15
A.I. Schools .....	1
Bull Studs .....	7
Total .....	1,083

#### LECTURES

University .....	26
Vocational Colleges .....	39
Others .....	6
Total .....	71

### COMMUNICABLE DISEASE CONTROL

Under the voluntary brucellosis program, 98,754 calves were vaccinated by 114 veterinarians with organizational work performed by agricultural fieldmen. Vibrosis appeared to decline as a disease problem in cattle, possibly through the increased use of bacterins. Rabies appeared in Alberta at widely scattered points. Equine encephalomyelitis and infectious anemia were reported. Infectious bovine rhinotracheitis continued to pose a problem for cattlemen.

On community pastures, deaths or illnesses in 67 cattle and 24 sheep were investigated by veterinary practitioners. Serious outbreaks of foot rot in sheep appeared on two pastures with 500 animals involved. Water hemlock poisoning caused 12 cattle deaths on one pasture.



The veterinary clinic at Fairview commenced operation in February and was officially opened by the Premier, the Hon. Harry E. Strom, on June 8, 1970. Other districts are expressing interest in the possibilities of embarking on a clinic program. Morbidity and mortality statistics were compiled from veterinary practitioner reports on calls to 5,207 premises.

**LIVESTOCK INSPECTION**

Veterinarians, working in this program, inspected livestock offered for sale at 56 class “D”, three Class “E” and three Class “F” stockyards. Sales at the 62 stockyards totalled 3,288. Of the 1,380,381 animals offered for sale, 22,733 were rejected and ordered returned to the owner’s premises or sold on a slaughter only basis. Periodic inspections were made at 30 Class “C” and 166 Class “G” stockyards.

**HERD HEALTH PROGRAMS**

**Summary of Activities — Swine Herd Health**

Total enrollment at January 1, 1970 .....	46
Number of herd inspections .....	187
Necropsies performed at the laboratory .....	86
Necropsies performed by practitioners .....	7
Heads and lungs examined .....	936
Miscellaneous specimens examined .....	74
Enrollment at December 31, 1970 .....	52

Regular quarterly inspections were carried out on all enrolled herds and certified status was conferred on three herds.

Semi-annual health inspections were conducted on herds that used or planned to use either of the R.O.P. test stations. This comprised 94 individual farm inspections and in no case was a herd rejected from testing for health reasons.

Sixty-six herds were inspected prior to entering major swine sales and one herd was rejected for infectious disease.

Participation continued in the Calgary quality milk control program and a number of meetings were attended to advise on mastitis prevention and control.

**LIVESTOCK MEDICINE REGULATIONS**

Licences were issued during the year to 433 outlets, a decrease of two from the previous year. Three hundred ninety-five inspections were carried out at licenced outlets and eighteen at premises of new applicants. All reports of infractions were investigated and all were brought to a satisfactory conclusion.

Twenty-five licenses to sell live virus poultry vaccines were issued. Marek’s disease vaccine was approved for use in Alberta.

## **RABIES CONTROL**

Staff members served on the Central Rabies Control Committee and attended meetings during the year. Depots for the shipment of suspected rabies heads are maintained by the division at 40 country points. Depots are located in the offices of veterinarians, pest control officers, Fish and Wildlife officers and others.

## **SLAUGHTERHOUSES AND HUMANE SLAUGHTER**

Ninety-two licences were issued to businesses operating abattoirs already licenced as locker plants or specialized processing plants. Two were issued to businesses operating an abattoir only, and three to educational institutions offering instruction in slaughtering procedures.

Dr. G. W. Summers spent two weeks in Ontario observing the operation and administration of the Ontario Meat Inspection Act. Eighteen abattoir visits were included.

Three Locker Association meetings were attended, six investigations conducted regarding abattoir problems, and twenty-nine routine visits made.

## **EMERGENCY PLANNING OFFICER**

Dr. G. W. Summers was in charge of emergency planning for the department. One annex of the resources book was updated, and emergency assignments of personnel were reviewed.

Four E. G. Areas have prepared agricultural annexes to their plans and these have been approved by the Minister. Eight more are being prepared now.

Twelve district agriculturists or their assistants were given training in their emergency responsibilities at the Alberta EMO school. Seventeen departmental personnel received the agricultural officers' course at Arnprior.

Five provincial departmental personnel participated in Exercise Jimex 1 in Olds, and four in Exercise Samex 1 in Grande Prairie.

## **LABORATORY SERVICES**

Alberta's highly developed livestock industry requires an equally highly developed system of veterinary field and laboratory services to protect it from disease losses. The laboratories at Edmonton and Lethbridge provided specialized diagnostic services which cannot be given in the field. Veterinary practitioners used the laboratories to identify new diseases, assist in diagnosis of problem cases, or to confirm a tentative diagnosis. Stockmen, wildlife biologists and others used the services to establish a diagnosis. A careful examination of dead animals or birds is often necessary to relate the cause of death to a specific factor. Identifying the cause is always essential to intelligent treatment and control of disease.



The data below illustrate the rapid increase in use of the services. There were especially large increases in cattle and laboratory animal specimens. As a result of the excessive burden of incoming specimens, a careful analysis of work load factors was made. Some areas of work were eliminated and emphasis shifted on others to make the best use of resources.

Preparations were made to store laboratory data in a computer to facilitate retrieval and analysis. The work was completed, and data for 1971 will be stored in the computer.

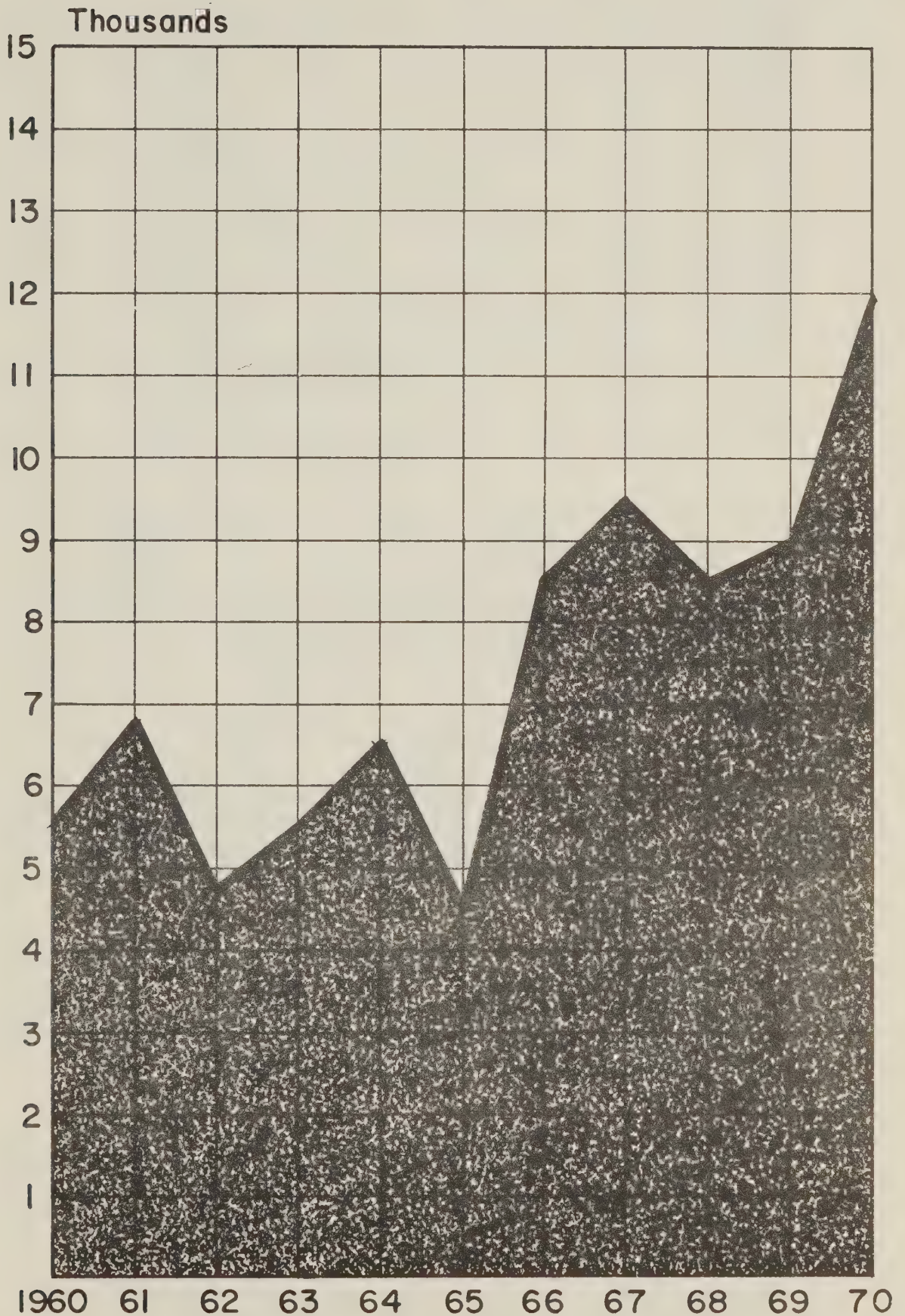
In addition to the responsibility to agriculture, the toxicology section served the medical profession, health units, police departments and other departments of government by carrying out chemical analysis related to their work. Analysis of many game birds was also necessary in connection with mercury residues. The Veterinary Laboratory Services provided the staff for the "Shared Services" section of the O. S. Longman Building which includes delivery, mail and duplicating services, and other administrative assistance to all other laboratories in the Longman Building.

Tenders were called for the Fairview Laboratory and construction began in early spring. At year's end, the building had been completed and staffed. The first specimens were accepted in December.

#### **SPECIMENS EXAMINED (by laboratory sections)**

		<b>No. Specimens Examined</b>	
<b>EDMONTON</b>		<b>1969</b>	<b>1970</b>
Animal		10,747	13,430
Poultry		7,724	12,919
Microbiology		12,972	15,493
Histopathology		15,527	18,058
Parasitology		879	1,527
Toxicology		13,410	14,033
<b>LETHBRIDGE</b>			
Animals		2,641	2,629
Poultry		1,199	2,314
Microbiology		2,449	2,823
Histopathology		2,596	3,626
<b>FAIRVIEW</b>			
Animal		0	7
Poultry		0	1
Microbiology		0	7
Histopathology		0	57
<b>TOTAL</b>		<b>70,144</b>	<b>86,924</b>

TOTAL CONSIGNMENTS TO  
LABORATORIES (1960-1970)  
VETERINARY SERVICES





Following is a list of domestic species and numbers of specimens of each received and examined.

	Edmonton	Lethbridge
Cattle	4,433	1,170
Swine	5,258	668
Sheep	374	367
Horse	191	66
Dog	1,224	168
Cat	394	35
Fur	274	33
Wildlife	170	49
Chickens	139	1,985
Turkeys	1,932	262
Bloods		
avian	3,764	
animal	318	167
Milk	3,589	156
Others		
avian	1,084	176
animal	1,331	74
Total	30,475	5,376
GRAND TOTAL		35,851

(Figures do not include toxicology section or specimens referred from one laboratory section to another.)

## TOXICOLOGY SECTION

The services provided include:

1. Human and veterinary toxicological analysis—A total of 1,487 samples of human tissues and body fluids were analyzed for hospitals, coroners and police forces (from live patients and post mortem cases). Also, analyzed were 1,077 animal tissues and body fluids.
2. Chemical analysis for the Department of Health - Water Analysis were performed on 8,021 samples to determine suitability for human and animal consumption. In addition to the determination of major constituents, fluoride and iron, detailed analysis were done on 742 of these for trace components.
3. Forensic chemical analysis: 708 specimens and exhibits were tested for R.C.M.P. and local police forces. These were of a large variety and involved complex chemical and physico-chemical examinations. The head of the laboratory appeared at court hearings on 96 occasions.
4. Quality control analysis (Alberta Liquor Control Board): 2,490 beer and liquor samples were tested.

## PROMINENT DISEASES

The following chart lists the more important diseases in food animals based on laboratory records.

CATTLE	Edmonton	Lethbridge
Abortions (all causes) .....	462	81
Blackleg .....	17	5
Bloat .....	31	30
Coccidiosis .....	22	4
Colibacillosis .....	164	45
Inf. Bov. Rhinotracheitis .....	12	8
Johne's Disease .....	1	1
Lungworm Infection .....	6	2
Malignant Edema .....	12	0
Other Clostridium Infections .....	2	0
Pneumonia .....	217	55
Poisoning .....	32	8
Polioencephalomalacia .....	12	9
Pulmonary emphysema .....	12	12
Virus Diarrhea .....	4	4
Vitamin A Deficiency .....	28	1

Colibacillosis or calf scours, shipping fever, and other types of pneumonia were the major cause of losses. While a variety of bacterial and viral agents are involved in these diseases, good management could prevent many of the cases. The number of colibacillosis cases increased considerably. Abortion problems were again very serious but the increasing problem could not be attributed to a single factor. Virus infections due to IBR were involved in some herds, and while the virus of bovine virus diarrhea was isolated from a number of fetuses it is not yet known whether its presence is significant. White muscle disease, probably due to selenium deficiency, was another major factor in cattle losses. The remaining disease problems were scattered over the approximately 125 conditions diagnosed in cattle.

SWINE	Edmonton	Lethbridge
Abortions (all causes) .....	53	16
Anemia .....	30	9
Atrophic Rhinitis .....	25	7
Colibacillosis .....	295	71
Edema Disease .....	27	0
Encephalitis .....	42	1
Enteritis .....	137	6
Erysipelas .....	105	19
Gastro-Enteritis .....	14	0
Infectious Serositis .....	28	4
Mulberry Heart Disease .....	46	8
Necrotic Enteritis .....	25	0
Pneumonia .....	267	50
Vibrionic Dysentery .....	35	25



There were nearly twice as many cases of swine erysipelas as in the previous year. There were also marked increases in pneumonia and anemia due to iron deficiency. There was a significant increase in the number of cases of mulberry heart disease, another condition probably related to selenium deficiency. Abnormal bone development in growing pigs due to mineral and vitamin imbalances were more common than the previous year.

SHEEP	Edmonton	Lethbridge
Enterotoxemia .....	5	1
Listeriosis .....	16	
Malnutrition .....	2	1
Parasitism .....	35	10
Pneumonia .....	55	

No specific disease or diseases of singular significance were found in sheep. The ewe/lamb mortality survey conducted at Lethbridge indicated that management factors were the main cause of losses. Details may be found in this division report.

POULTRY	Edmonton	Lethbridge
Air Sac Infection .....	62	3
Ascites & Oedema .....	14	6
Avian Encephalomyelitis .....	14	6
Capillaria worms .....	15	1
Coccidiosis .....	96	10
Coliform Septicemia .....	176	13
Deficiencies .....	75	8
Fowl Cholera .....	13	1
Leukosis — Lymphoid .....	190	11
— Marek's .....	392	78
Salmonellosis .....	33	3
Arizona Paracolon .....	38	0
Aspergillosis .....	35	0
Tibial Chondrodystrophy .....	14	4

Marek's disease was the most frequently diagnosed condition and increased over last year. The marketing of a vaccine at the end of the year may reduce these very serious losses. Salmonella and Arizona paracolon infections were increased. Dyschondroplasia, a cause of lameness in broilers, and fatty liver syndrome in laying birds are relatively new conditions which were troublesome. Infectious synovitis was diagnosed in Alberta chickens for the first time.

### SPECIAL INVESTIGATIONS

- Ewe/lamb mortality survey conducted in Lethbridge over a twelve month period in co-operation with a local sheep enterprise.
- Bovine polioencephalomalacia.
- Viral encephalitis in swine.
- Transmissible gastro enteritis virus isolation .

- Salmonella survey in animals.
- Mycoplasmal arthritis in swine.
- Investigation into the efficacy of the new Marek's disease vaccine in co-operation with the Poultry Branch, university and industry.
- Epidemiological investigation of an outbreak of salmonellosis in chickens.
- Tibial dyschondroplasia in broiler chickens.
- Investigation of Salmonella culture techniques.
- Investigation of population decrease in mountain goats in co-operation with Fish & Wildlife Division.
- Investigation in conjunction with Fish & Wildlife re: Epizootic Hemorrhagic Disease.
- Survey of cats in Lethbridge area to determine the incidence of the tapeworm *Echinococcus multilocularis*.
- Trichinosis survey.
- Investigation of "splashing" in swine carcasses.
- Sheep foot-rot on community pastures.
- Survey conducted on animal injury and losses following severe hailstorm in the Viking area.
- Investigation of suspected Leptospirosis in southern Alberta cattle.
- Study of petroleum and natural gas industry effects in animals.
- Investigation of water hemlock poisoning in a community pasture.

## PUBLICATIONS

- (1) "Posterior Paralysis of Unknown Etiology Causing Total Loss in a Large Turkey Flock"  
**J. Howell, D. W. MacDonald and C. Riddell.**  
Can. Vet. Jour. 11: 168. 1970.
- (2) "Inclusion Body Hepatitis in Chickens"  
**J. Howell, D. W. MacDonald, and R. G. Christian.**  
Can. Vet. Jour. 11: 99. 1970.
- (3) "Biochemical Aspects of an Outbreak of Polioencephalomalacia"  
**F. M. Loew, R. H. Dunlop, and R. G. Christian.**  
Can. Vet. Jour. 11: 57. 1970.
- (4) "Lesions of Bovine Primary Ruminal Tympany"  
**J. L. L. Mills, and R. G. Christian.**  
J.A.V.M.A. 157: 947. 1970.



- (5) "Lead Poisoning in Cattle: Brain Lesions and Hemologic Changes"

**R. G. Christian, and L. Tryphonas.**

A. J. Vet. Res. (in press).

- (6) "Oral Papillomatosis in the Coyote in Western Canada"

**E. Broughton, F. E. Graesser, L. N. Carbyn, and L. P. E. Choquette.**

Jour. Wildlife Dis. 6: 180. 1970.

- (7) "An Outbreak of Locoweed Poisoning in Horses in South-western Alberta"

**W. N. Harries, F. P. Baker, and A. Johnson (in press).**

### **FUR FARMS BRANCH**

During the year, 377 fur farm licences were issued of which 130 were mink, 240 were chinchilla and seven were miscellaneous fur bearers. Mink farmers exported 189,796 pelts on a sharply declining market and brought nearly two million dollars in pelt returns. The national average for mink pelts dropped to a new low of \$11.32, resulting in about 40 mink farms closing out in this province, similar to the trend in other Canadian provinces.

Alberta government guarantees for interim assistance loans to mink farmers, O. C. 888/70, was introduced. This program made available guaranteed loans to mink farmers, amounting to \$5 on breeding stock and up to \$6 on kits. It assisted greatly in bringing the year's crop to maturity.

Information was made available on mink, chinchilla, rabbits and other fur bearers and five mink bulletins were published during the year.

Dr. John R. Gorham, Head of the U.S. Fur Farm Animal Disease Research at Washington State University and Dr. Rendle E. Bowness, Director of Fur Research, Master Feeds of Toronto appeared at special fur breeders' meetings.

Rabbit breeders suffered a severe setback when the Calgary Rabbit Processors Ltd. closed for financial reasons.

<b>Year</b>	<b>Licences Issued</b>		<b>Mink Pelts Produced</b>	<b>Mink Pelt Value</b>
	<b>Chinchilla</b>	<b>Mink</b>		
1968-'69	240	130	189,796	\$1,971,822
1967-'68	245	184	201,444	\$2,765,762
1966-'67	206	224	190,691	\$2,686,591

# REPORT OF THE WATER RESOURCES DIVISION

**R. E. Bailey, P.Eng., Director**

<b>BRANCH HEAD:</b>	<b>W. Solodzuk</b>	— Chief Engineer
	<b>J. L. Reid</b>	— Supervisor of Hydro-Electric Development
	<b>F. G. Primus</b>	— Internal Administration
	<b>B. Boyson</b>	— External Administration
	<b>R. Deepprose</b>	— Hydrology
	<b>I. Anderson</b>	— Design
	<b>D. Harrington</b>	— Land Development
	<b>P. Melnychuk</b>	— Maintenance
	<b>L. D. M. Sadler</b>	— Soils, Geology and Groundwater

## GENERAL

It is with deep regret that we record the death of John Shymoniak on November 2, 1970. Mr. Shymoniak joined the division in April, 1966 and was in charge of the Water Resources Laboratories in the Longman Building. He made significant contributions to the division, not least of which was the design and establishment of the Soils and Concrete Laboratories which are among the finest in Western Canada.

## CANADIAN COUNCIL OF RESOURCE MINISTERS

Following the principles established at the National Water Seminar in Victoria in 1968, and the recommendations following the Atlantic Regional Seminar in 1969, the activities of the Canadian Council of Resource Ministers relative to water resources during the past year, has been mainly directed towards the arrangements for a Prairie Region Water Seminar in 1971.

A Prairie region subcommittee of the National Water Steering Committee was established under the chairmanship of Mr. Grant Mitchell, Executive Director of the Saskatchewan Water Resources Commission, composed of senior water management people from the Governments of Canada, Alberta, Manitoba and Saskatchewan to plan and co-ordinate arrangements. Each provincial chairman subsequently appointed a provincial subcommittee to undertake the provincial aspects of the seminar.



A three tier program has been decided upon which will feature much wider involvement than in previous Council seminars. The general objectives are:

- (1) To achieve and exchange views of prairie water matters among local and regional interest groups, government officials, and professionals from universities and consulting firms.
- (2) To provide an opportunity for senior water resource managers to consider prairie water matters and programs recommended by users, working level planners, technicians and researchers in relation to existing policies and programs.

The first tier will consist of two seminars in each of the three provinces. One seminar will involve representatives of local and regional interest groups, recreation and wildlife associations, environmental groups, local governments, etc.; the second to involve working level professionals in the various fields of water resource management from universities, government agencies, and consulting firms.

The second tier will consist of a seminar to be held in Regina involving senior officials of the federal and all provincial water management agencies across Canada in addition to delegates appointed from the first tier sessions. The objectives of the main seminar will be:

- (1) To consider the problems and solutions put forward by the first tier seminars from the prospective national, provincial and regional goals and objectives;
- (2) To analyse these problems and solutions in relation to existing policies and programs, to identify conflicts and regional requirements and aspirations and to identify weaknesses in existing policy and purposes.

The third tier of the seminar will consist of a further one day session in each province involving the same participants as the first tier seminar for the purpose of:

- (1) Informing the participants of proceedings and conclusions of the main seminar.
- (2) Obtaining a critical review of the response of the main seminar participants to problems and solutions proposed in the first tier seminar.

It is considered desirable to complete all sessions within the span of one year and accordingly it is anticipated that the first provincial seminars will take place in June and the last sessions are scheduled for late in 1971.

## **PRAIRIE PROVINCES WATER BOARD**

Since the reconstitution of the Prairie Provinces Water Board as reported in the 1969 Annual Report, the Board has directed its attention mainly to defining its role and the nature of future activities.

One of the duties assigned the Board is the administration of the Interprovincial Water Apportionment Agreement. The technical difficulties in monitoring water apportionment has long been recognized, and the Board agreed that certain interim procedures would be acceptable for the present until more sophisticated methods could be proposed after appropriate research and study.

The Board recognized that upon the completion of the present Saskatchewan-Nelson Basin studies, the next logical sequence of events would be to undertake a water-use demand inventory for the prairie region. A task force was accordingly appointed to draft terms of reference for such a study.

Members of the Board considered the physical facilities which might be needed in the future, including a secretariat and staff to undertake such studies and compilation of reports as the Board may require to meet its obligations. The secretary and two Board members were given an assignment to draft proposed criteria and by-laws such as may be necessary to accommodate the functions of the Board.

A task force was also established to determine terms of reference of a study for the development of a water quality network in order that the Board might carry out this new term of reference, namely that of advising governments on general water quality criteria throughout the prairie region.

## **SASKATCHEWAN-NELSON BASIN STUDY**

The study is progressing on schedule and this year is the half-way point in the study, with a scheduled completion date during the latter months of 1972. The actual study started in 1968.

The Committee of Ministers, under the chairmanship of The Honorable H. E. Strom met in Winnipeg on May 28, 1970, to receive and review the Board's annual report.

For background information, reference should be made to previous annual reports beginning with 1963. Briefly, however, the Committee of Ministers and the Board were established on October 16, 1967, when the governments of Canada, Alberta, Manitoba and Saskatchewan signed an agreement setting up the Committee and Board and authorizing the current studies over a four-year period at a cost of \$5,000,000.

The study is designed to examine the water resources of the Saskatchewan-Nelson Basin including modifications to the supply by storage and additions to the supply by diversions into the basin. The feasibility and construction costs of combinations of storage and diversion works needed to provide a firm water supply at various points along the river system are being studied.



## **AGROHYDROLOGY BRANCH**

Extensive work was carried out in the Lee Creek Watershed which lies in the southwest corner of the province. Significant amounts of instrumentation were added during 1970 most of which is related to stream flow monitoring or snow hydrology. It is hoped that this, coupled with the existing instrumentation, will enable a prediction of the effects of soil types, soil moisture conditions, and moisture uses by various crops on the discharge amounts for measured precipitation values. Knowledge of these factors can assist in flood control and reservoir management.

Studies of surface irrigation methods were made on the plots located near Bow Island. Problems encountered with irrigated grassland were also studied. Data obtained from various types of moisture monitoring equipment will be used to determine the wetting profiles obtained after irrigation and also to calculate the consumptive use values for irrigated pasture.

In connection with the International Hydrologic Decade, a study was undertaken to establish a correlation between the data obtained from various types of evaporimeters. Some work was also done calculating consumptive use values for various types of crops and forest cover in southern Alberta.

The branch also co-operated in collecting soil moisture and consumptive use data for watershed studies at Spring Creek and Olds, and contributed to the irrigation gauge program. In answer to a request from the Alberta Department of Lands and Forests, an evaluation of the hydrology of the Tide Lake Watershed was also undertaken.

In the Edmonton and Peace River regions, previous years' programs were continued and extended. These were primarily concerned with the suitability of irrigation to these areas and the compilation of agrometeorological data.

## **INDIVIDUAL ACTIVITIES**

### **Watershed Program**

The basic objective of the Lee Creek Watershed study is to determine what effect the soils and soil moisture conditions have on stream flow and storm runoff. In 1970 the degree of instrumentation was increased significantly, particularly in the field of snow hydrology.

The stream flow was monitored at four sites, both by means of a current meter and a water level recorder. Foot bridges were installed at two locations to enable measurement of high flows. One bridge washed out, so trolley cars were installed at three locations to prevent this reoccurring. Two wire gabion-type weirs were also installed to maintain an adequate water level at the recorders. Most flow measurements were taken at intervals varying from twice a week (during the spring) to once a month in

the fall. This interval was shortened considerably during periods of rain in order to determine the discharge hydrograph for the storm. Extensive infiltration studies were also conducted in 1970. In addition, an attempt was made to measure ground water discharge in the tributaries of Lee and Tough Creeks, as well as irrigation runoff into Lee Creek.

Two snow pillow sites were set up in the fall of 1970 to further extend the degree of instrumentation in the watershed. Included at each snow pillow site are:

Two snow pillows—one under the trees and one in the clearing. Six moisture blocks—three near each snow pillow at various depths. Two recording manometers—one for each snow pillow. One instrument shelter—to house the manometers and the recorders. Four neutron access tubes—at the Tough Creek site only.

In addition to the snow pillow sites, snow surveys were conducted in the watershed during the spring and also in December. By means of these surveys and the use of two recently installed snowmelt lysimeters, the effects of chinook winds will be studied.

Much time was also spent analysing the data obtained from the project. Stream hydrographs and water use graphs were plotted and various types of climatic and physical feature maps were constructed. Some calculations were also done in an effort to ascertain the consumptive use values for the different types of cover within the watershed.

A "Preliminary Hydrologic Report on the Lee Creek Watershed" was completed in December of 1970 with the main emphasis being placed on what uses the watershed could best be put to.

**Statistics**

	Existing	Added In 1970	Total
Moisture blocks	47	12	59 (9 sites)
Neutron access tubes (4,600 readings)	28	4	32 (5 sites)
Water level recorders—F-type	4	—4	0
—A-35 type	0	+4	4
Weirs (Gabion-type)	0	2	2
Cable trolleys	0	3	3
Flume for runoff measurement	0	1	1
Meteorological Equipment:			
Meteorological sites:—precipitation gauge only	17	0	17
—additional equipment	7	3	10
Additions in 1970:—			
Wind direction and velocity recorder		1	
Class "A" Evaporation pan		1	
Precipitation storage gauges		8	
Snowmelt lysimeters c/w recorders		2	
Snow pillows		4	
Tests run in 1970:			
Bulk Density		109	
Water Holding Capacity		109	
Infiltration		66	
		(22 sites)	



**Bow Island Plots**

Much of the data gathered during 1969 was analysed in the first part of the 1970 fiscal year. Calibration curves for the moisture blocks were drawn up and along with the tensiometer conversions, were used to calculate fluctuations in the soils moisture reservoir during the year.

All of the information for 1969 was then consolidated with the irrigation evaluation test results into an annual report.

To begin the 1970 crop year, moisture blocks and tensiometers were installed at the plots. Soil samples for laboratory analysis were also taken at this time and meteorological equipment was installed.

Weeds were a major problem for the newly seeded grass but they were mowed regularly and by August the grass, particularly clover, was well established in most areas. Weeds along the roadsides were also sprayed.

Semipermanent flumes were installed on the nine test borders. Some of these were converted to self-recording units during the summer of 1970.

Four evaluations were carried out on each border during the summer (June to September) and eleven infiltration tests were undertaken according to the method outlined by Finkel and Nir ("Determining Infiltration Rates in an Irrigation Border", Journal of Geophysical Research, 1960).

Late in September the tensiometers and meteorological equipment was removed and those flumes not converted to automatic operation were removed to be converted during the winter. As a final step, a fall irrigation was carried out in the middle of October to insure adequate moisture levels in the spring of 1971.

With the completion of the 1970 crop year, calculations began and the data was reviewed for inclusion in an annual report.

**Statistics**

Evaluation tests performed	36
Finkel and Nir tests	11
Moisture equipment:	
Neutron access tubes	21
Moisture blocks	72
Tensiometers	108
Meteorological equipment:	
Gen atmometer	1
Solar radiometer	1
Hygrothermograph	1
Standard rain gauge	1
Recording rain gauge	1

## **Irrigated Plot Studies**

To evaluate the benefit of irrigation in central and northern Alberta, studies of irrigated crops were conducted in the Edmonton and Grande Prairie areas. In many respects, these studies were a continuation and extension of past years' work.

A study concerned with the "Economics of Sprinkler Irrigation in Central Alberta" was undertaken and a report was published in June of 1970.

In the Peace River region, studies are being made of the benefits of irrigation and determination of crop moisture use criteria. This data is being compared with similar data obtained under dryland farming conditions. Significant amounts of agrometeorology data is also being gathered.

## **Miscellaneous Activities**

In order to correlate the data obtained from different types of evaporationimeters, graphs were constructed to compare the results obtained from fifteen instruments of different types.

In connection with the irrigation gauge program the Agrohydrology Branch was responsible for the installation and servicing the meteorological equipment.

In the field of irrigation planning, a good deal of effort was channeled towards the calculation of consumptive use values and the construction of consumptive use curves for southern Alberta crops and forest cover.

As its contribution to the Water Resources Division's display at the 1970 Lethbridge Whoop-Up Days, this branch exhibited a model with related photographs, etc. of the Lee Creek Watershed. Various employees of the branch manned the display during the six-day exhibition.

At the request of the Department of Lands and Forests, an evaluation of the hydrology of the Tide Lake Watershed was undertaken and a short report submitted in December of 1970.

## **DESIGN AND CONSTRUCTION BRANCH**

### **ALBERTA WATER CONTROL PROGRAM**

#### **Objectives**

In general terms the program is used to enhance the beneficial and multipurpose use of water through water control projects. This is done by assisting local authorities in investigation and design and providing grants for construction of flood control, erosion control, irrigation and water development projects.



## **History**

The financial assistance policy to local governments has been in existence since 1954. Traditionally, flood control has been the primary objective of most projects initiated in the north and north-central areas of Alberta. The costs of projects in improvement districts north of the 55th parallel were shared equally between this department and Northern Alberta Development Council. Several drainage projects within irrigation districts have been undertaken under three way agreements with costs shared among the department of local governments and irrigation districts. More recently, considerable financial assistance has been obtained from Ducks Unlimited for the multipurpose type project.

## **Ribstone Creek Project**

This project is a typical example of the multipurpose concept being applied to water development. Ribstone Creek is located in east-central Alberta close to the town of Wainwright. Broad hay flats along the creek provide a significant percentage of the hay requirements for a flourishing cattle industry in the area. A typical flood which occurred very frequently would cause a loss in excess of \$100,000.00.

The multipurpose project which is being undertaken, combines channel improvement and storage in low head dams. At the present time, 25 miles of channel improvement has been completed along with 6 dams with a total storage capacity of approximately 4,000 acre-feet. To date \$175,000.00 has been spent on the project, monies being provided by benefitting landowners, Ducks Unlimited, and the local, provincial and federal governments. Direct benefit will accrue to some 5,117 acres of hay land along the creek, in the form of flood protection and controlled flood irrigation. Other benefits are derived in the areas of improved wildlife habitat and augmentation of stream flows.

## **Summary**

Since the individual projects constructed in 1969 were not included in the past year's annual report they are being included along with the list of 1970 projects. It will be noted that a total of 81 projects have been under construction during 1969 and 1970. For a detailed summary of individual projects see Table I.

# ALBERTA WATER CONTROL PROJECTS (EDMONTON REGION)

Table 1

	Project	Location	Percentage Completed By 31/12/'69	Percentage Completed By 31/12/'70
1.	Meadowville Drainage	C # 1	100	
2.	Pofianga Dam	C # 3	95	98
3.	New Dayton Stock Watering	C # 5	100	
4.	Amisk Creek	C # 9	100	
5.	Kropielnicki Fl. C.	C # 9	100	
6.	Eyot Lake	C #10	95	100
7.	Mound Red Park	C #10	95	100
8.	Ronassen Fl. C.	C #11	95	100
9.	Camp Creek Fl. C.	C #11	95	98
10.	George Lake	C #11	60	90
11.	Olthius Fl. C.	C #11	100	
12.	East Tiger Lily Fl. C.	C #11	100	
13.	*Shoal Lake	C #11	90	100
14.	*Thunder Lake Div. Str.	C #11	100	
15.	Newton Lake Str.	C #11		95
16.	††Barrhead Water Supply	C #11		95
17.	Sawdy Fl. C.	C #12	95	100
18.	Rainy Creek Stage I	C #14	95	100
19.	Hiller Dam	C #17	100	
20.	Ross Creek Fl. C.	C #20	85	90
21.	Daysland and D.D. (Re-Const.)	C #22 & 29	65	95
22.	Waskasoo Creek	C #23	80	95
23.	Tindastall Creek	C #23	100	
24.	Goose Lake	C #28	100	
25.	Toad Lake	C #28		80
26.	*Romeo Lake	C #28		60
27.	Woytkiw Fl. C.	C #30	100	
28.	Golden Spike Fl. C.	C #31	100	
29.	Strawberry Lake Drainage	M.D. # 6	100	
30.	Claresholm Drainage	M.D. # 26	100	
31.	Nanton Drainage	M.D. # 26	100	
32.	Highwood River Dyke North Bank	M.D. # 31		100
33.	Priddis Creek Erosion Control	M.D. # 31	10	100
34.	Highwood River Town Dyke	M.D. # 31	100	
35.	Langdon-Weed Lake Drain	M.D. # 44	25	100
36.	Provost. Comm. Dam	M.D. # 52	100	
37.	Ribstone Creek St. III-A	M.D. # 52		80



# ALBERTA WATER CONTROL PROJECTS (EDMONTON REGION)

	Project	Location	Percentage Completed By 31/12/'69	Percentage Completed By 31/12/'70
38.	Ribstone Creek St. II	M.D. # 61	98	100
39.	Ribstone Creek St. III	M.D. # 61		95
40.	*Ribstone Creek Dams St. I	M.D. # 61		95
41.	Village of Chauvin	M.D. # 61		100
42.	Town of Grand Centre	M.D. # 87	100	
43.	Lake #5 Fl. C.	M.D. # 87	95	100
44.	La Corey Fl. C.	M.D. # 87		100
45.	Wabash Cr. St. I	M.D. # 92	100	
46.	Linaria N. Fl. C.	M.D. # 92	95	100
47.	Town of Westlock	M.D. # 92		95
48.	†Pembina River Erosion Control	M.D. # 92		10
49.	Lussier Drainage	M.D. #130	100	
50.	Bechard Drainage	M.D. #130	100	
51.	Young Drainage	M.D. #133	100	
52.	Spirit River No. 3	M.D. #133	100	
53.	††Fairview Town Water Supply	M.D. #136		60
54.	Canyon Creek	I.D. # 8	100	
55.	Sturgeon Lake Outlet Structure	I.D. #16	100	
56.	Little Smoky Drainage	I.D. #16		95
57.	Nampa Drainage	I.D. #17	95	100
58.	Bearhead Creek	I.D. #17	100	
59.	Marie Reine Drainage	I.D. #17	90	100
60.	Krawchuk Flood Control	I.D. #17	90	100
61.	West Prairie River	I.D. #17	40	65
62.	West Prairie Inlet Structure	I.D. #17		100
63.	Gordy Drainage	I.D. #17	100	
64.	Kushner Drainage	I.D. #17		100
65.	*Cadotte Lake Stabilization Structure	I.D. #17		100
66.	**Medley River Salmon Holding Pond	I.D. #18	70	95
67.	Saline Creek	I.D. #18		100
68.	Kakut Creek	I.D. #19	100	
69.	Four Mile Creek Drainage	I.D. #19	100	
70.	Laninga Drainage	I.D. #20	100	
71.	East Braeburn Drainage	I.D. #20	100	
72.	Letersky (Phase II Drainage)	I.D. #20	95	100
73.	Whitburn Drainage	I.D. #20	95	100
74.	Jack Creek Drainage	I.D. #21		100

## ALBERTA WATER CONTROL PROJECTS (EDMONTON REGION)

	Project	Location	Percentage Completed By 31/12/'69	Percentage Completed By 31/12/'70
75.	Clear Prairie Drainage	I.D. #21	100	
76.	South Deadwood Drainage	I.D. #22	100	
77.	North Manning Extension	I.D. #22	100	
78.	East Manning Drainage	I.D. #22		100
79.	North Star Drainage	I.D. #22		95
80.	Notikewin River Bank Stabilization (Town of Manning)	I.D. #22		100
81.	La Crete Drainage	I.D. #23		95

\* Construction Financed by Ducks Unlimited.

\*\* Joint Project with Lands and Forests (Fish and Wildlife Division)

† Provincial Project.

†† Financed by Local Authority and Ducks Unlimited.

**NOTE:—**Those without symbols are financed by local authorities and the provincial government.

## LAKE RESOURCE MANAGEMENT PROGRAM

In 1946, a program of lake stabilization was initiated through the mutual co-operation of Ducks Unlimited. In 1953, the Province added a system of data collection which has been enlarged and refined to its present status. The two main objectives of the program provided by this department are as follows:

1. The conservation and development of major lakes for the multipurpose use of water.
2. Providing public and government agencies with information such geodetic lake levels, hydrographic plans, as well as other information related to lakes in the province.

This program provides engineering, technical, and financial assistance for lake stabilization projects. Technical personnel are used in gathering data on lake levels and hydrographic surveys. These surveys are in turn used to prepare maps, plans and charts, which are available upon request.

## Hydrographic Surveys

The hydrographic and sedimentation surveys continued during the past year and resulted in the sounding of five lakes and two reservoirs. Data obtained from the hydrographic surveys was finalized in the form of subaqueous or bottom contours on a lake or reservoir plan. From these plans it is possible to determine depth and storage capacities for application in the field of water conservation, recreation, or industrial purposes.



## **Water Samples and Temperatures**

During the summer, 81 water samples were submitted for chemical examination and temperatures were recorded from 24 lake locations. This information will serve as long time records and will be useful in the event of diversion schemes or other possible uses.

## **Geodetic Surveys and Lake Levels**

During the past year, nine permanent bench marks were constructed and geodetic datum elevations run to 38 bench marks which were previously constructed. Three hundred and eighteen periodic levels were recorded of approximately 140 lakes throughout the province. In general, there was very little change in lake levels throughout the province.

## **Lake Stabilization**

Although no construction was carried out during 1970 on lake stabilization, several lakes were under active investigation.

## **DEVELOPMENT PLANNING BRANCH**

The Development Planning Branch continued its role of assessing long term water needs in the province and in developing alternative proposals to meet these needs. Work undertaken included collection of data concerning demands for water and related land resources; preliminary investigation and design of alternative projects; and intensified efforts to initiate comprehensive river basin planning in all aspects of water resource management.

Branch studies were concentrated on two major programs, the PRIME program (Prairie Rivers Improvement, Management, and Evaluation); and the Saskatchewan-Nelson Basin Study. The PRIME program encompasses water management in its broadest aspects, including the concept that within the province of Alberta water may eventually need to be redistributed from areas of surplus supply to areas experiencing water shortages. The Saskatchewan-Nelson Basin Study is complimentary to the PRIME program, as the study is establishing levels of water supply available in the major river basins, and is identifying potential sites important to future basin water management developments.

In keeping within the basin planning approach being used by the branch, activities are summarized by major basins.

## **ATHABASCA RIVER BASIN**

Preliminary investigations were completed and reports published on the following projects: Athabasca Dam - Oldman Site; Athabasca - McLeod Tunnel Diversion; McLeod Valley Dam; Diversion Chip Lake to Pembina; Diversion Pembina to North Saskatchewan via Mishow Creek. All these projects are components of the proposal to divert water from the Arctic watershed to the North Saskatchewan River system.

## **NORTH SASKATCHEWAN RIVER BASIN**

Preliminary investigations were completed and reports published on Magnolia Dam, and Rocky Mountain House Dam Site "E". Studies continued on the Sturgeon River Basin Development, as scheduled. The inventory and demand projection phases of this study have been finalized. The last phase, selection of alternatives, and recommendations is scheduled for completion in 1971.

The Battle River Study was completed, including a benefit-cost analysis of the engineering alternatives presented. Communication with local authorities indicated a desire to proceed with both the Driedmeat Lake and Coal Lake projects.

## **RED DEER RIVER BASIN**

Preliminary investigations were completed and reports published on two projects, Diversion Ardley Reservoir to Buffalo Lake; and the proposed Bigelow Dam. Studies currently underway include the following projects: Diversion North Saskatchewan via Stauffer Creek to Raven River; Raven Dam on the Red Deer River; Diversion Raven Dam to Torrington; and Torrington Dam. These projects concern the proposal to divert water from the North Saskatchewan River to the Bow River.

## **SOUTH SASKATCHEWAN RIVER BASIN**

Assessment of six alternate water storage and diversion sites in the Bow River Basin, including the Eyremore Site, the Bow-Highwood Site, and the Crowfoot Creek Site were completed and covering reports were published. The purpose of creating additional storage in the Bow River basin would be to increase volumes of water available to irrigation districts, and to supplement low river flows.

### **South Saskatchewan River Basin Study**

A detailed outline of the objectives and content of this study is contained in the 1968 Annual Report. The data collection and physical resource inventory phases of this study are well underway with some portions already completed. In addition, the economic analysis of the region, including identification of the primary input-output sections, is progressing favorably. Completion date of this study, revised from the original date of 1971 due to delays in negotiations with the University of Alberta and difficulties in staffing, is now scheduled for July 1972. There is however, a distinct possibility of a further delay due to a recent reassignment of all economic phases of the study to the University.



## **EXTERNAL ADMINISTRATION BRANCH**

### **WATER RIGHTS LEGISLATION AND ADMINISTRATION**

The need for a more comprehensive integrated approach to the development of water and associated resources became increasingly apparent. Lines of communication were established with other government agencies having related regulations to facilitate processing and approval of applications for the use of water.

Efforts were continued to improve procedures for the processing of applications under The Water Resources Act and for the storage and retrieval of project data.

A draft of a proposal for amending The Water Resources Act was prepared for study. This proposal recognized the above procedural changes and is to apply to all water in the province and to all uses to which the water may be put. Although numerous changes are proposed for clarification of intent the basic principles of the act remain essentially the same.

### **WATER RIGHTS**

A total of 212 applications for water rights were received and recorded in 1970. The distribution of these applications as related to drainage basin and purpose is shown in Table I.

A total of 250 interim licences and 276 final licenses for all purposes were issued and 69 projects transferred. As part of the updating program, 434 water rights were cancelled mainly because of abandonment.

**Table I**

**APPLICATIONS BY DRAINAGE BASIN AND PURPOSE — 1970**

DRAINAGE BASIN	DOM	MIN	IRR	IND	OTHER	TOTAL
Athabasca River	10	0	3	1	0	14
Battle Creek	0	0	0	0	0	0
Bow River	15	0	4	2	0	21
Churchill River	0	0	0	0	1	1
Endon Slough	0	0	0	0	0	0
Forty Mile Lake	1	0	0	0	0	1
Great Sandhills	5	0	0	0	0	5
Kindersley Lake	0	0	0	0	0	0
Lodge Creek	0	0	0	0	0	0
Manito Lake	8	0	0	0	2	10
Many Island Lake	4	0	2	0	0	16
McGregor Lake	0	0	0	0	0	0
MacKenzie River	0	0	0	0	0	0
Milk River	2	0	0	0	0	2
North Saskatchewan River	16	0	13	6	16	51
Oldman River	10	0	6	3	0	19
Pakowki Lake	7	0	3	0	0	10
Peace River	2	0	1	0	1	4
Red Deer River	28	0	8	2	3	41
Sevenpersons Creek	11	1	3	0	0	15
South Saskatchewan River	1	0	5	1	0	7
Sullivan Lake	3	0	1	0	0	4
Tide Lake	0	0	0	0	0	0
Wild Horse Lake	1	0	0	0	0	1
Totals:	124	1	49	15	23	212



Table II

## STATISTICS CONCERNING IRRIGATION DISTRICTS IN ALBERTA

NAME OF DISTRICT	CONSTRUCTED AREA	RECEIVING WATER IN 1969	SOURCE OF SUPPLY
St. Mary River Irrigation District	194,618.0 Acres	124,879.0 Acres	St. Mary River
Magrath Irrigation District	8,506.0 Acres	4,500.0 Acres	) All through the
Raymond Irrigation District	20,700.0 Acres	15,000.0 Acres	) works of the
Taber Irrigation District	60,561.0 Acres	45,980.0 Acres	) S.M.R.I.D.
Western Irrigation District	150,000.0 Acres	13,500.0 Acres	Bow River
Eastern Irrigation District	200,000.0 Acres	198,248.0 Acres	Bow River
Bow River Development (Federal)	94,000.0 Acres	70,580.0 Acres	Bow River
Bow River Irrigation District	25,000.0 Acres	9,400.0 Acres	Bow River
Mountain View Irrigation District	3,719.0 Acres	2,789.0 Acres	Belly River
Leavitt Irrigation District	4,523.0 Acres	4,523.0 Acres	Belly River
Aetna Irrigation District	6,672.0 Acres	2,523.0 Acres	Belly River
United Irrigation District	33,972.0 Acres	10,228.0 Acres	Belly River
Lethbridge Northern Irrigation District	89,386.0 Acres	35,092.0 Acres	Oldman River
McLead Irrigation District	Not Operating		Oldman River
Ross Creek Irrigation District	2,069.0 Acres	900.0 Acres	Gros Venture Creek
Totals	893,726.0 Acres	538,142.0 Acres	

A study of the Ross Creek Drainage Basin was undertaken in the spring of 1970. This resulted in the updating of 274 licenced projects and locating 141 illegal projects, mostly small stock-watering dams.

During the year an additional 13,649 plans were microfilmed and placed in aperture cards. The microfilming of project files was begun with 1,800 files containing approximately 160,000 images filmed and mounted in 4" x 6" microfiche.

### **IRRIGATION WATER AGREEMENTS**

During the year a total of 38 water agreements were received from the Bow River Irrigation District (federal block) for approval, registration and filing.

**Table 2** shows the major irrigation districts in Alberta and the areas that actually received water during the year 1969.

### **IRRIGATION RIGHT-OF-WAY**

Considerable progress was made regarding the survey and purchase of right-of-way. During 1970, 41 right-of-way plans were registered:

St. Mary River Irrigation District	17
Bow River Irrigation District	13
Lethbridge Northern Irrigation District	2
Taber Irrigation District	5
Other Irrigation Districts	4

### **PROPERTY CONTROL**

The property control section is generally responsible for the acquisition of right-of-way required under all programs. This includes appraisals, negotiations, agreements and completion of transactions.

Complaints and damage claims are investigated. Land title and pipeline searches are conducted as well as leasing certain lands owned by the Department of Agriculture. Easements and placing of caveats are the responsibility of this section along with the placing and removal of reservations on Crown lands. Certain phases of subdivisions come within the scrutiny of this section.

Requesting surveys and seeing that the plans are approved and registered are another function of this section. Public relations work is done prior to and after survey, construction, testing and drilling.

During 1970 considerable land was purchased for:

1. Pembina River Dam
2. Irrigation Districts
3. East-West Prairie River Diversion
4. Grimshaw Flood Control
5. Bigelow (Three Hills) Dam

Cost of right-of-way was investigated for:

1. Coal Lake Project
2. Driedmeat Lake
3. Bridge Lake
4. Several other small projects



GROUNDWATER ADMINISTRATION

The Groundwater Control Act provides for the licensing of water well drillers and the submission of a completion report on each water well. This information serves as basic data for answering public and driller inquiries, for settling disputes and for use in groudwater studies carried out by the Research Council.

During the past year over 485 visits and inspections were made relative to well complaints, flowing wells and regulation enforcement. In addition, staff participated in eight farm water supply schools throughout the province in co-operation with the Extension and Colleges Division. The schools were held as a public service to present the latest information on all phases of farm water availability and recovery methods.

A water well driller's directory was published, listing all licensed water well drillers, addresses, number and type of machines and members of the Alberta Water Well Drilling Association.

The following is a summary of information relative to the water well drilling industry, showing a comparison for the years 1966 to 1970.

Number of licensed water well drillers	1966	1967	1968	1969	1970
Full time	212	210	217	234	227
Part time	95	91	97	99	98
Occasional	78	59	62	69	68
Out of business or Dormant	36	54	57	32	26
	3	6	1	34	35
Number of drilling rigs	250	239	253	267	258
Rotary	120	111	115	111	118
Cable Tool	82	83	85	89	88
Jetting	23	22	31	34	27
Boring	25	23	22	32	25
Number of drilling reports received	1,850	1,970	1,900	2,377	2,520

Local Authority	No. of Gal. Supplied	No. of Feet of Pipe	Date Pumping Commenced	Total Days of Pumping
Hamlet of Joussard	2 Million	500'	April 13, 1970	5 Days
Fort Chipewyan	2 Million	4,000'	June 30, 1970	14 Days
Wasketenau	7½ Million	500'	June & Nov.	14 Days

## HYDRO-ELECTRIC DEVELOPMENT

### BIGHORN SITE

Work continued on the Bighorn Site which is located on the North Saskatchewan, 80 miles west of Rocky Mountain House. The dam will be 1,400 feet long, 300 feet high, and will contain 3,800,000 cubic yards of material. The reservoir will be 20 miles long, with a total area of 13,700 acres. The area flooded, in addition to the present flood plain, is approximately 9,000 acres. The total live storage of the project will be 1,165,000 acre-feet. The full supply level will be 4,335 geodetic datum with a drawdown of 120 feet, more or less. Two turbines, each capable of producing 54,000 kilowatts, will be installed. The total cost of the project is expected to be between \$35 to \$45 million.

Work on this project during 1970 included the completion of the by-pass tunnel. The river was diverted by tunnel on October 15, 1970 around the dam site during construction of the dam, and portions of these tunnels—some 1,500 feet long and 22 feet in diameter—form the power tunnel. Water will pass down the power tunnel or penstocks to the generators. There are two portions of the tunnel being used which will be sealed when the power house is completed and the generators installed. The tunnel contract is almost completed.

The next contract awarded was for the earth work which started in the fall of 1970. Part of the work could not be done until the diversion was made.

A separate contract was awarded for a curtain wall which lies under the central core. This was not considered feasible when this project was examined in the early 1950's. The river bed is composed of pervious gravel, and without sealing this gravel, water would seep under the dam, weakening the foundation. A special bentonite curtain wall is being built downward some 200 feet from the base of the dam. This work started immediately after the diversion of the river and should be completed by March of 1971. The entire equipment and work is being conducted inside a heated polyethylene protected structure which protects both men and equipment from the cold weather.

When the curtain wall is completed the normal dam construction will begin with the core of the dam being keyed to the curtain wall and also to the core and blanket of the upstream coffer dam.

The last but not the least important of the contracts, that of the power house, was awarded late in the fall of 1970. This power house has a unique feature in that due to poor foundations at the power house location, the structure will be partially held in place by anchor cables fastened to the good rock on the upstream side. This work will get under way in 1971 and will be completed by the fall of 1972.



## **SLAVE, ATHABASCA AND PEACE RIVERS**

No new work was done on the Athabasca River but more preliminary examinations were given to the Peace River and also to the Slave River, which is formed by the Athabasca and Peace Rivers.

The first site examined is known as the Dunvegan Site and is at a location known as Mile 79 which is in 12 and 13-80-5-West of the 6th meridian. This site has had preliminary examinations with some drilling done in the river bottom.

Basic site data indicates gross head of 125 feet and an installed capacity of 4 units at 140,000 H.P., each giving a total installed capacity of 560,000 H.P. Space would probably be left for the installation of a fifth unit again of 140,000 H.P. which brings the total capacity to 700,000 H.P.

The second and third sites examined are alternates. One or the other would be built but not both.

The second site is that known as Mile 232 and is located in 4 and 9-94-20-West of the 5th meridian. This site has had very preliminary examinations and no drilling has been done.

Basic site data indicates gross head of 130 feet and installed capacity of 4 units of 140,000 H.P. each giving a total installed capacity of 560,000 H.P. This project would probably also leave space for the installation of a fifth unit again of 140,000 H.P. which would bring the total capacity to 700,000 H.P.

The third site is that known as Mile 251 and is located in 22 and 23-96-20-West of the 5th meridian. This site has had very preliminary examination and no drilling has been done.

Basic site data indicates gross head of 145 feet and installed capacity of 4 units of 140,000 H.P. each giving a total installed capacity of 560,000 H.P. This project would probably also leave space for the installation of a fifth unit again of 140,000 H.P. which would bring the total capacity to 700,000 H.P. The annual firm output of Mile 251 would be slightly greater than that of Mile 232.

The fourth site examined was examined first in 1923 and has had several proposals for some less than total development. The present point being examined is near Mountain Rapids and is approximately ten miles south of the North West Territories/ Alberta boundary. The exact head is not specified but it would probably have similar sized units as the sites on the Peace River which would be 140,000 H.P. and studies are being based on the installation of ten units which would give total installed capacity of 1,400,000 H.P. A great deal of work is necessary before the feasibility of this site can be established.

## **HYDROLOGY BRANCH**

Hydrological investigations into the complicated flow regime in the Athabasca Delta were a major activity of the Hydrology Branch during 1970. Extensive field measurements of flow and water level in the Peace-Athabasca-Slave complex were accompanied by intensive mathematical computations. A preliminary report outlining current knowledge on this subject together with descriptions of the cost and effect of some possible lake level control devices was completed in October.

A second major work published this year concerned the Spring Creek Basin Research Project mentioned in previous annual reports. This paper presented both detailed data and a first analysis of information gathered to date. The importance of this work is recognized in noting that lack of early and continual analysis is a well-known weakness in most watershed research.

The other main area of research under the direction of the Hydrology Branch is concerned with river and stream erosion, sediment transport and self-formation of channels and flood plains. Currently, the emphasis is on field investigations involving the use of hydrophones for estimating incipient movement of bed materials.

The related field of river engineering was highlighted by river bank protection works installed along the Highwood River near the town of High River, following a model study of that section of the river.

The regular program of hydrological studies in support of divisional projects, flow forecasting, and general provision of hydrological information continued.

## **LAND DEVELOPMENT BRANCH**

### **INTRODUCTION**

The Land Development Branch is involved with farm irrigation and surface water control, land development planning, irrigation studies, external administration and basin studies.

Staff specialization includes the subject matter areas of farm irrigation and drainage, soil moisture plan relationships, and land use planning.

### **FARM IRRIGATION AND SURFACE WATER CONTROL**

#### **Land Levelling**

The demand for services for land levelling was about average, even though the spring market outlook was not good. A total of 270 applications were received, 14,537 acres surveyed, 14,557 designed and the season ended with 6,797 acres levelled. This represents a total expenditure of approximately \$408,250 dollars by farmers in the Lethbridge region.



## Sprinkler Irrigation

The sprinkler sales industry was quite strong in 1970. Along with sales of many side roll wheel move sprinkler systems, a significant number of center pivot systems were installed. Although these systems represent a significant increase in capital investment, their acceptance is expected to increase until something even better is produced for the market. The availability and cost of farm labor is the most significant factor in determining whether or not a farmer installs a center pivot system. Our role in this part of the industry should increase, as these systems must be thoroughly designed to fit each particular application.

Seventy three sprinkler investigations and designs were completed. One special design was done for Great Canadian Oil Sands at Fort McMurray to aid in the revegetation of waste and dumps near the Athabasca River.

## Farm Water Control

A total of 228 requests were received from farmers for assistance on drainage problems. These requests were dealt with by visiting the farmer, advising on outlet conditions and consents required, and finally preparing a design for development of the project. More emphasis is being placed on encouraging farmers to conserve, store, and use surplus spring runoff rather than drainage. This is a time consuming but necessary activity in that a more positive attitude needs to be developed among farm people regarding farm surface water control. Sixty-seven miles of farm ditch designs were completed.

## IRRIGATION STUDIES

These studies were undertaken in 1968 to obtain information about irrigation and irrigation practices. Most of the work is being done with crops such as alfalfa which respond well to moisture management and have the potential to provide an economic return. Both controlled plots and farm plot studies are used.

A two acre plot of alfalfa established at the Oliver Tree Nursery provided the following information in 1970.

### ALFALFA HAY YIELD IN TON/ACRE AT OLIVER TREE NURSERY

	Irrigated	Non Irrigated
1st cut (July 8)	2.55	1.60
2nd cut (September 7)	2.02	1.90
Total	4.07	3.50

The irrigated alfalfa hay consumed 19.0 acre inches of water from May 1 to September 31 while the non irrigated hay consumed 16.5 acre inches in the same period.

Several other plots of hay seeded for dryland hay production were irrigated. Both total yields and increased in yields from irrigation were lower than at the Oliver plots. To illustrate, the results from Donnelly (Peace River Area) are shown.

**ALFALFA HAY YIELD IN TON/ACRE AT DONNELLY**

	Irrigated	Non Irrigated
1st cut	1.45	1.32
2nd cut	1.35	.53
Total	2.80	1.85

Spring moisture conditions were excellent because of the previous fall record rainfall and therefore drought did not become serious until mid summer.

At Morinville, a test of the use of sewage effluent for irrigation was started in 1970. If these waters can be successfully employed in irrigation, many small towns could employ effluent irrigation as an alternative to spring effluent discharge into natural waterways. The principal technical problems expected are those connected with possible soil deterioration from relatively low quality irrigation water and ground water pollution.

It is hoped in the future to expand this work to cover specific problems encountered in the field or problems of limited interest.

Several such problems are:

- 1) Control of crop loss from frost by sprinkler irrigation.
- 2) Irrigation timing required to maximize legume seed production while maintaining quality.
- 3) Limits placed on irrigation by environmental factors.

## **LAND DEVELOPMENT PLANNING**

### **Land Use Assignment Committee**

The objective of the committee is to relate the natural resource capabilities of public lands in Alberta to the present and future needs of society.

The branch head represented and co-ordinated the Water Resources Division input. Reports were submitted giving information on groundwater, climatology, river regime and bank stability. A water resource management map was included with each report indicating those areas requiring special management for watershed protection. The reports submitted covered the following areas, Fort Assiniboine, Puskwaskau, Edson, Peers, Puskwaskau East, and Poll Haven grazing reserve. Studies underway are Medicine Hat, Saddle Hills, Birch Hills, Fawcett, Moose-Portage, Clear River and MacKay.



## **Special Land Use**

Preliminary studies were made to co-ordinate water resources watershed management requirements with the project leaders on the Hinton-Yellowhead Regional Planning Study and the Forestry Foothills Land Use Study. A re-evaluation of the type of water resource input required to formulate water resource management recommendations for industrial development leases on crown land and particularly in the green zone was undertaken and will be finalized with the Department of Lands and Forests early in 1971.

## **Tree Removal and Stream Bank Protection**

The Conservation and Utilization Committee named the branch head to chair a task force to review existing legislation and programs and present recommendations. Three meetings were held and a preliminary draft is being prepared.

## **Allocation of Public Land**

A water resource management report was prepared for the Lands Branch, Department of Lands and Forests for Township 67, Range 21, West of the 4th and Township 68, Range 21, West of the 4th. Included were three preliminary drainage designs and cost estimates. Cost per acre for drainage ranged from \$40.00 to \$17.00. It was recommended that only those lands requiring minimum or no drainage be offered for sale.

## **EXTERNAL ADMINISTRATION**

The Land Development Branch prepared 80 agricultural reports to the External Administration Branch. The reports resulted from investigations of soil characteristics, water quality, method of irrigation, irrigation requirement, available water supply, and net depletion. Where projects had been constructed the condition and adequacy of the works according to the P.F.R.A. plan were also reported.

## **BASIN STUDIES**

An irrigated land classification map and report was finalized with the Soils, Geology and Groundwater Branch for the Sturgeon River Basin Study.

## **LAND MANAGEMENT BRANCH**

The Land Management Branch has been operating under the new Irrigation Land Manager Act for one year. New policies set down in this act have allowed a much larger program of assistance to farmers, upon request. Although this program has only been in operation for one year, it would appear that these additional benefits available to our settlers are of considerable help.

The Land Manager activities in 1970 consisted of purchasing and selling land for the consolidation of units in the St. Mary River Irrigation District and the Bow River Irrigation District.

Collections for the year were slightly lower than in previous years. This was due to the economic situation which prevailed in 1970. Land sale and water right agreements are decreasing each year.

Seventy settlers in the St. Mary River Irrigation District and the Bow River Irrigation District participated in the 1969 farm business program. Records show that crop yields were better than longterm averages for all districts. Farm income from grain crops was generally lower due to the combination of reduced crop acreage and depressed market prices; however, many settlers were not affected due to the diversification of their farm operations. Livestock programs were definitely expanded in 1969. Both sales and inventories increased considerably. Moderate capital growth was apparent in all districts and the cost of production continued upward during the year.

Work on irrigation rehabilitation and feasibility studies was continued.

Historical details of the progress are shown on the attached statistical summaries.



## COLLECTIONS ON LAND SALE AND WATER RIGHT AGREEMENTS

### S.M.R.I.D.

	1966	1967	1968	1969	1970
Land Sale	\$ 66,000.00	\$44,000.00	\$44,000.00	\$66,000.00	\$58,800.00
Water Right	\$112,000.00	\$96,000.00	\$73,000.00	\$61,000.00	\$40,800.00

### B.R.I.D.

	1966	1967	1968	1969	1970
Land Sale	\$36,000.00	\$44,000.00	\$31,000.00	\$42,000.00	\$18,000.00
Water Right	\$30,000.00	\$31,000.00	\$24,000.00	\$28,000.00	\$12,300.00

### S.M.R.I.D. SETTLERS IN ARREARS

Year	LAND		WATER RIGHT	
	Number	Amount	Number	Amount
1965	87	\$200,997.69	72	\$20,882.83
1966	74	\$160,959.51	59	\$14,928.23
1967	69	\$159,663.19	51	\$13,495.70
1968	65	\$175,836.85	52	\$13,031.97
1969	58	\$175,681.21	43	\$10,170.21
1970	64	\$199,802.45	44	\$10,374.79

### B.R.I.D. SETTLERS IN ARREARS

Year	LAND		WATER RIGHT	
	Number	Amount	Number	Amount
1965	52	\$91,772.21	50	\$10,291.13
1966	44	\$93,528.01	40	\$10,969.56
1967	40	\$85,848.91	37	\$10,030.28
1968	32	\$82,634.85	27	\$ 7,107.98
1969	32	\$77,774.27	30	\$ 9,652.23
1970	30	\$87,420.84	25	\$ 7,837.74

### WATER RIGHT AGREEMENTS

#### S.M.R.I.D.

Year	Active Agreements	Agreements Paid Up	Number In Arrears	Amount of Arrears
1965	1,109	630	716	\$98,846.61
1966	1,053*	780	657	\$89,433.44*
1967	902**	940	517	\$60,186.26*
1968	732***	1,191	497	\$54,192.38**
1969	438****	1,371	317	\$42,125.64***
1970	293	1,517	108	\$17,561.05

\* Includes 101 Interim Water Right Agreements.

\*\* Includes 102 Interim Water Right Agreements.

\*\*\* Includes 129 Interim Water Right Agreements.

\*\*\*\* Includes 37 Interim Water Right Agreements.

\* Includes 50 Interim Water Right Agreements in Arrears.

\*\* Includes 77 Interim Water Right Agreements in Arrears.

\*\*\* Includes 37 Interim Water Right Agreements in Arrears.

### B.R.I.D.

Year	Active Agreements	Agreements Paid Up	Number In Arrears	Amount of Arrears
1965	319	40	217	\$29,774.16
1966	305	45	172	\$23,242.48
1967	287	64	93	\$ 9,398.46
1968	271	83	118	\$12,282.74
1969	224	153	111	\$11,877.34
1970	204	170	78	\$13,226.27

### S.M.R.I.D., B.R.I.D. AND HAYS

	1965	1966	1967	1968	1969	1970
Settlers Established	300	303	303	308	310	317
Quitclaimed, Withdrawals, Cancelled	56	58	61	61	61	61
Total Number Of Purchase Agreements	385	388	393	406	410	425
Agreements Paid Up	127	149	169	186	202	211
Active Agreements	201	182	163	159	147	154
Additional Parcels Allotted	62	62	65	73	75	83
Parcels Of Land Remaining Unsettled	86 (*48-CP)	99 (*31-CP)	102 (*31-CP)	93 (*31-CP)	91 (*31-CP)	87 (*31-CP)
Number Of Parcels Of Land Leased	110	99	102	93	91	87

(\*CP refers to lands reserved for Community Pasture development.)

### MAINTENANCE BRANCH

The matter of maintenance and repair of projects for which the Water Resources Division is responsible represents a steadily growing demand. To satisfy this requirement, a Maintenance Branch was established in 1970.

The maintenance program is used to ensure continued operating efficiency of all structures and related works for which the Water Resources Division has assumed the responsibility of total maintenance. These structures include those turned over to the Province by P.F.R.A., as well as those constructed by Water Resources Division on a provincial basis. Included in this program is technical and financial assistance for the maintenance of those water control projects constructed by Water Resources Division under a joint program with local authorities.

Funding for operation and maintenance of joint programs is totally local since there is no financial assistance under the Alberta Water Control Assistance Plan.

The 1970-'71 program included:

- (1) continued operation and maintenance of the Aetna, Leavitt and Mountain View main canal and reservoir.
- (2) continued operation and maintenance of the Little Bow Canal.
- (3) repair of a timber structure on the Clear Prairie Project.
- (4) repair of the Fawcett Lake Dam.
- (5) construction of erosion control structures on the Hotchkiss Drainage Project.
- (6) general maintenance on ten drainage and flood control projects in the Peace River Region.
- (7) inspection and assessment of maintenance requirements on twenty water control projects.

### **SOILS, GEOLOGY AND GROUNDWATER BRANCH**

Major priorities were added to branch programs in 1970. Those that stand out are increased emphasis on studies related to waste disposal in co-operation with private industry, development of computerized data retrieval programs and more attention to the area of technical support for groundwater allocation.

Branch organization was modified to include five provincial sections with section heads located geographically in the area of greatest activity. Terms of reference for individuals and working groups of specialists were developed to provide a more clearcut approach to programs and activities.

A brief resume of major functions for 1970 follows.

### **SOIL CLASSIFICATION**

Soil classification work was concentrated in three main activity areas in 1970. Inputs to irrigation rehabilitation planning on soil suitability were made for the Taber Irrigation District and the Lethbridge Northern Irrigation District. Work continued on soil classification for irrigation suitability on the Red Deer River Development Project and the Sturgeon River Project. Reports are updated each year as a result of additional current investigations.

The third major area involved soil classification of miscellaneous quarter sections (90) on request from irrigation districts and on blocks of land as a result of requests from irrigation districts and various government agencies. An example, was the work carried out on the Medicine Hat Community College grounds.



## **HYDROGEOLOGY**

Preliminary groundwater evaluation of the South Saskatchewan River Basin was completed in 1970. As well, several preliminary reports were prepared for various blocks of land in Northern Alberta in conjunction with studies related to land use assignment. Supervisory and technical support was provided for various applied research projects such as: Vegreville Groundwater Discharge Study and the Spring Creek I.H.D. Basin near Valleyview.

Studies are continuing in the I.H.D. study basin at Lethbridge; the final hydrogeological report and a third annual report on progress are now complete. Supervision of contract work for municipal and other water well development continued to be a function of the branch at the request of other agencies. Training sessions for farmers and other groups met with considerable success.

## **SOIL DRAINAGE RECLAMATION**

Work continued in several major activities. These include service to irrigation districts through the irrigation rehabilitation program; planning such as the present contribution to general plans for irrigation project rehabilitation; investigation service for individual farmers; soil reclamation; monitoring of shallow and deep groundwater plus pollution monitoring of ground surface and irrigation waters; contribution to exhibition displays and other public relations responsibilities; and seepage damage claim assessments including the co-contribution to plan preparation for irrigation districts to exempt them from damage claims under the terms of the 1970 revision of the Irrigation Act.

## **GROUNDWATER**

Major emphasis in the area of groundwater investigations was allocated to the farm water development program (approximately 200 requests), buried channel exploration program and the development of a computer storage and retrieval system for geology and groundwater data. In order to provide better service and gain superior technical data, test drilling under the farm water development program was extended to 300 feet with a corresponding increased charge to farmers.

Increased emphasis was put on technical support for groundwater licensing and legislation. A milestone will be reached in April, when Water Resources Division will assume licensing responsibilities for groundwater production for secondary oil recovery.

## **SOIL AND WATER QUALITY**

The laboratory service load increased significantly in the past year primarily in regard to diversification and analytical detail. Excellent progress has been made on the I.H.D. closed basin project at Del Bonita. Co-operation in a fish farming project with Fish and Wildlife Division and attention to pollution problems related to the coal mining industry were some of the additional activities.

A complete year of operation on the "Granum Sewage Disposal by Irrigation" project was finalized. Detailed work was carried out at Vauxhall and Taber related to irrigation use of waste effluent including installation of monitoring devices as an applied research function. Intensive research was done in the laboratory and greenhouse to further the knowledge of the effect of sewage effluent on soil and groundwater. Sewage sludge was evaluated as a growth supplement in co-operation with the Lethbridge Research Station.

# **REPORT OF THE WHEAT BOARD MONIES TRUST**

Report of the Board of Trustees of the Surplus Wheat Board Money Received by the Government of the Province of Alberta from the Canadian Wheat Board 1916-1970.

## **MEMBERS:**

**Honorable H. A. Ruste — Minister of Agriculture — Chairman**

**Dr. E. E. Ballantyne — Deputy Minister of Agriculture—Member**

**Hugh M. Thompson — Olds, Alberta—Member**

**Minot L. Stetson — Edmonton, Alberta—Member**

**Robert H. McMillan — Executive Secretary, Department of  
Agriculture—Secretary**

During the year ending December 31, 1970, receipts were \$9,416.87 which include maturity of a \$5,000.00 term deposit and interest on investments. Accrued earnings at this date from term deposits and interest on investments, were \$4,678.67.

Disbursements during the year amounted to \$6,835.55 being payments of scholarships and book purchases for the agricultural colleges.

A meeting of the Board of Trustees was held on June 22, 1970. Scholarship and bursaries to be awarded during the fiscal year 1970-'71 were approved in the amount of \$5,100.00.

It was also agreed that surplus funds as a result of unused bursaries and scholarships be paid to the agricultural colleges library accounts, this amount being \$1,500.00 (\$500.00 to each college) in 1970-'71.

The Board has continued the policy of conserving the principal in the trust fund, making all payments from income received on investments.



# **REPORT OF THE ALBERTA MILK CONTROL BOARD**

**S. H. Thomas, B.S.A., Chairman**

J. M. Bentley, B. Comm.—Member

T. A. Peterson, B.Sc., M.A.—Member

J. B. Moore—Secretary

The Milk Board held six informal hearings throughout the province and five meetings were held in Edmonton.

Legislation consisted of Alberta Regulations 29/70 and 292/70 being milk control regulations under the Milk Control Act. Amendments to the Milk Control Act were assented to on April 15, 1970.

One prosecution under the Milk Control Act was concluded to the satisfaction of the Milk Board.

Under the amended milk control regulations, modifications were made to simplify producer settlements and to processor report forms. Following these changes a revised and much more detailed system of auditing by Milk Board inspectors is being instituted.

In accordance with the Milk Control Act the Public Utilities Board held price hearings throughout the province and effective July 16, 1970 ordered new minimum prices for both producer and consumer schedules.

Milk Board representatives met with other western province milk boards during the year and our board maintains a membership in the International Association of Milk Control Agencies.

The Milk Board continued support both active and financial in the dairy cost survey and local milk foundations within the province.

Total sales of all fluid products by controlled area processors were 307,664,925 pounds as compared to 288,121,374 pounds in 1969, an increase of 6.78%. Milk production from producers supplying these areas was 370,217,881 pounds against 335,677,179 pounds in 1969, an increase of 10.28%.

Table 1

NUMBER OF MILK PRODUCERS AND DISTRIBUTORS OPERATING ON DECEMBER 31, 1970, UNDER THE  
ALBERTA MILK CONTROL BOARD LICENSE

	1968 PRODUCERS	1968 DISTRIBUTORS	1969 PRODUCERS	1969 DISTRIBUTORS	1970 PRODUCERS	1970 DISTRIBUTORS
CALGARY	239	5	233	5	245	4
CAMROSE	5	2	5	2	5	2
CROWSNEST PASS	4	1	4	1	4	1
EDMONTON	412	5	410	5	435	5
LETHBRIDGE	40	2	37	2	35	2
MEDICINE HAT	19	2	18	2	14	2
PONOKA	4	1	5	1	5	1
RED DEER	15	4	15	4	16	4
TOTAL	739	22	728	22	759	21
AVERAGE DAILY SHIPMENT PER PRODUCER	1,256		1,263		1,336	

Table 2

## FLUID MILK CONSUMPTION — 1966 - 1970 — IN QUARTS

(STANDARD, HOMO, 2%, SPECIAL, SKIM)

AREA	1966	1967	1968	1969	1970
CALGARY	31,917,381	31,304,729	32,914,495	35,041,488	37,760,565
CAMROSE	816,117	792,051	791,303	781,974	850,564
CROWSNEST PASS	456,512	447,306	425,038	468,354	496,042
EDMONTON	40,547,753	40,545,022	42,322,154	45,370,223	47,731,836
LETHBRIDGE	3,374,219	3,388,971	3,609,236	3,868,131	4,172,528
MEDICINE HAT	2,067,070	2,063,751	2,175,069	2,293,338	2,431,913
PONOKA	612,257	659,129	709,558	718,091	680,448
RED DEER	2,869,440	2,866,575	3,141,984	3,107,738	3,295,419
TOTAL	82,660,749	82,067,504	86,088,837	91,649,337	97,419,315



Table 4

## FLUID MILK PURCHASES BY DISTRIBUTING PLANTS, 1966 - 1970 — IN POUNDS

AREA	1966	1967	1968	1969	1970
CALGARY	114,320,526	118,788,246	122,291,321	118,833,167	132,711,164
CAMROSE	2,629,551	2,551,881	2,522,902	2,507,395	3,074,044
CROWNEST PASS	1,405,800	1,425,900	1,336,300	1,635,000	1,673,330
EDMONTON	161,532,340	167,398,728	167,495,841	166,079,069	181,918,285
LETHBRIDGE	24,716,100	24,432,200	25,689,600	26,019,300	29,873,091
MEDICINE HAT	8,175,700	8,534,800	8,720,100	8,853,700	7,716,110
PONOKA	1,631,402	1,845,775	1,902,676	1,732,718	2,169,767
RED DEER	8,699,512	9,572,341	9,870,819	10,016,830	11,082,090
TOTAL	323,110,931	334,549,871	339,829,559	335,677,179	370,217,881

Table 3

## FLUID CREAM CONSUMPTION — 1966 - 1970 — IN QUARTS

AREA	1966	1967	1968	1969	1970
CALGARY	1,897,796	1,805,402	1,810,353	1,817,707	1,800,984
CAMROSE	40,916	43,289	44,045	42,061	43,235
CROWNEST PASS	2,889	2,809	2,290	3,777	4,079
EDMONTON	2,732,003	2,759,277	2,946,666	2,841,782	2,808,998
LETHBRIDGE	211,552	201,259	206,765	201,729	199,921
MEDICINE HAT	125,296	117,224	119,835	119,684	118,357
PONOKA	28,590	25,602	23,963	21,549	22,420
RED DEER	130,225	120,839	125,947	123,061	136,450
TOTAL	5,169,267	5,075,701	5,279,864	5,171,350	5,134,444
TOTAL in B.F. Equivalent - lbs.	1,744,628	1,713,049	1,781,954	1,745,331	1,732,874



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H. A. RUSTE, MINISTER  
E. E. BALLANTYNE, DEPUTY MINISTER

